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State unemployment insurance (UI) systems impose taxes on employers that are used to finance benefit payments to laid-off workers. UI taxes are experience rated, but only imperfectly. Some firms are therefore able to avoid paying for the benefits their laid-off employees receive. In fact, some groups of firms may systematically be subsidized by others, by persistently paying less in taxes than their former employees collect in benefits.

The research discussed here has two primary goals. The first is to investigate the extent of cross-subsidization in present UI systems among firms of different size. The second goal is to estimate how small and large firms would be affected by various proposed reforms of these systems. The empirical work is based on administrative records of UI systems in three states—California, Delaware, and Texas. The data were used to measure the subsidy (UI benefits minus taxes) for firms of different size and to estimate how the subsidy would change if various UI parameters were changed.

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UNEMPLOYMENT INSURANCE AND FIRM SIZE

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9 December 1985

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Dear Dr. Lichtenstein:

Enclosed are fifty (50) copies of Research Memorandum 85-101,
"Unemployment Insurance and Firm Size." This publication completes work
conducted under contract 7206-OA-83.

Phil E. DePoy
President

UNEMPLOYMENT INSURANCE AND FIRM SIZE

Marianne Bowes
Louis S. Jacobson
Frank P.R. Brechling

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ABSTRACT

State unemployment insurance (UI)
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EXECUTIVE SUMMARY

State unemployment insurance (UI) systems impose taxes on employers that are used to finance benefit payments to laid-off workers. UI taxes are experience rated; that is, a firm's tax rate depends on the firm's "unemployment experience," as defined by the state. Experience rating is, however, incomplete. For example, tax schedules have minimum and maximum tax rates, and some benefits are not charged against any employer.

The fact that experience rating is imperfect implies that the UI taxes paid by a firm will not necessarily equal the benefits paid to workers laid off by that firm. In fact, some firms or groups of firms may systematically pay either more or less in taxes than their former employees receive in benefits. That is, the UI system may generate cross-subsidies among different groups of firms.

Past research has found persistent patterns of cross-subsidization among various industries. A major goal of the research reported here is to investigate the extent of cross-subsidization among firms of different size. While few provisions of UI systems are based explicitly on firm size, it is possible that the characteristics of small firms are such that they end up subsidizing, or being subsidized by, larger firms.

The data used in the study consist of administrative records of UI systems in three states: California, Delaware, and Texas. These records contain data for every firm and worker subject to UI laws. The data covered the period 1979-82 in California, 1978-81 in Delaware, and 1978-82 in Texas. A representative sample of industries, consisting of 43 two- and three-digit SIC groups, was chosen for study.

In the first part of the project, we examined the experience of firms of different size under the present UI systems in the three states. Three variables were studied in detail: the UI tax rate, measured as taxes divided by either taxable or total payroll; the layoff rate; and the UI subsidy, defined as the sum (over time) of benefits minus taxes. These variables were created for each size class; the results were then examined to see whether the values varied systematically by firm size.

The patterns by size class differed from state to state. In California, small firms (those with fewer than 100 employees) appeared to have substantially higher layoff rates than larger firms. This conclusion did not, however, hold for the other states. In Delaware, layoff rates for small firms were in the middle of the distribution, while in Texas firms with 1 to 49 employees had lower average layoff rates than larger firms did.

In each state, the ratio of UI taxes to taxable payroll had a tendency to rise with firm size up to a point, and then decline. Small firms did not appear to have inordinately high tax rates in any of the states. However, large firms did tend to have the lowest rates, especially when the ratio of taxes to total payroll was computed.

A positive value for the UI subsidy means that a firm was subsidized by the UI system: benefits were persistently higher than taxes. The dollar amount of the subsidy had a different pattern in each of the three states (see table 1). In California, the subsidy tended to decline as firm size rose, especially in the range 1 to 249 employees.[1] In Delaware, the subsidy rose with firm size in the range 1-249 employees and declined thereafter (except for firms with 1,000-4,999 employees). In Texas the pattern was the strongest: the subsidy rose almost monotonically with firm size. While firms with less than 100 employees were the least subsidized by the UI system in Texas, in California and Delaware they were neither the most subsidized nor the least subsidized.

TABLE I

UI SUBSIDY BY SIZE CLASS

Firm size (no. of employees)	Subsidy ($000)[a]		
	California (1979-82)	Delaware (1978-81)	Texas (1978-82)
0	--	149	6
1-4	-4,201	-201	-9,736
5-9	-28,694	5	-7,694
10-19	-33,310	161	-8,059
20-49	-58,925	368	-6,258
50-99	-60,264	1,243	-28
100-249	-71,770	2,222	3,244
250-499	-39,395	-613	3,292
500-999	-6,491	-6,233	7,285
1,000-4,999	-26,883	8,349	8,141
5,000+	-239,504	-12,044	8,528
Total	-569,437	-6,593	-1,280

a. Using benefits computed on a base-period-employer basis.

1. Because total taxes--consisting of taxes credited to the balancing account as well as taxes credited to the firm's own account--were used to compute the subsidy, the subsidy was negative for most firms in California. In the other two states, positive values of the subsidy were more common.

In sum, we do not feel that the results reveal any tendency for the unemployment insurance system to treat small firms in a particularly favorable or unfavorable manner. In Texas, tax rates seemed slightly out of line with layoff rates for the very smallest and largest firms, but in general tax rates seemed to reflect either layoff rates or average benefits per claimant. Except in Texas, small firms did not appear to be paying large subsidies to the UI system (compared to large firms).[1] On the other hand, small firms did not appear to be heavily subsidized by the system.

The second part of the project was concerned with the effects of various changes in UI systems on firms of different size. A number of reforms of the system have been proposed in recent years, such as raising the taxable wage base, increasing maximum tax rates, decreasing minimum tax rates, and reducing the amount of noncharged benefits. Some of these reforms may be more beneficial to small business than others.

First, we developed a simple model of the effects of a UI parameter change on benefits, taxes, and thus the subsidy. Since it would be difficult to predict results by size class without doing some calculations, we used the values of the relevant variables for a particular size class to generate results for that category as a whole and for the typical firm in that category.

The simulations represent a variety of benefit and tax parameter changes, but by no means all the proposed reforms of the UI system. Due to the nature of the data, some reforms—such as reducing the amount of noncharged benefits—could not be simulated at all. Other reforms could only be simulated in a crude fashion.

The benefit parameter changes studied include:

- An increase in the weekly benefit amount

- A change in the waiting week provision

- A change in the potential duration of benefits

- Tightening of eligibility requirements.

On the tax side, we simulated the effects of:

- An increase in the taxable wage base

- A change in the treatment of new firms

- A change i.i minimum and maximum tax rates

- A change in tax rates for all firms.

---

1. All firms in California subsidized the balancing account.

A parameter change was defined as "harmful" from business' point of view if it increased either UI benefits or UI taxes. Since the parameter changes that we simulated were either harmful to all firms or beneficial to all firms, it was necessary to determine which firms were hurt (or helped) the most. We therefore examined how both the dollar change in benefits or taxes and the percentage change varied by size class.

The results imply that some UI parameter changes would be especially burdensome for small business. The most burdensome changes were not the same in the three states. Moreover, it was not always the very smallest firms who were affected the most by a change. In fact, it was unusual to find results that varied monotonically with firm size. This is not really surprising. A firm's industry is probably a more important determinant of its experience under the UI system than its size is. This is because a firm's degree of sensitivity to the business cycle, which is an important determinant of its pattern of layoffs, is largely dependent on the products the firm produces.

Not only the numerical results, but also the model used to generate them, should be of interest. The equations used to do the simulations indicate which variables are important in predicting the effect of a change in the UI system and can be used to extend our results for California, Delaware, and Texas to other states.

The one policy change that would probably be harmful to small firms in every state would be an increase in the tax rate for new (non-experience rated) firms. Since new firms tend to be small, small business would suffer the most from such a change.

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INTRODUCTION

Payroll taxes paid by employers—including Social Security and unemployment insurance (UI) taxes—have become an increasing burden to firms since they were first imposed in the 1930s. Both the tax rate and the taxable wage base for Social Security and unemployment insurance have risen over time. In 1985 a major change occurred in the UI system: the "standard" tax rate specified in the federal law—that is, the tax rate that employers can use to calculate their credit against federal UI taxes—was increased from 2.7 percent (which it had been since the beginning of the system) to 5.4 percent. In practice, this change means that states must increase their maximum UI tax rates to at least 5.4 percent and only allow employers with "good" unemployment experience a reduction below that level.

Unlike Social Security taxes, UI taxes are experience rated; that is, a firm's tax rate depends on its past layoff rate. Experience rating is, however, incomplete. For example, UI tax schedules generally have minimum and maximum tax rates. For firms paying the minimum, a reduction in layoffs will not lead to a reduction in the tax rate. Conversely, for firms paying the maximum, an increase in layoffs will not result in an increase in the tax rate.

Experience rating is also limited by the fact that some benefits are not charged to any employer. These "noncharged benefits" are not paid by the employers responsible for them, although ultimately all firms pay for noncharged benefits in the form of a higher tax rate.

Because experience rating is imperfect, there is no guarantee that a firm will pay for its own layoffs and only those layoffs. In fact, some firms or groups of firms may systematically subsidize others; that is, they will persistently pay more in UI taxes than their laid-off employees receive in benefits.

Past research (Becker [1], [2]; Munts and Asher [5]) has found that UI systems generate persistent cross-subsidization among industries. One purpose of the research reported here is to investigate the extent of cross-subsidization among firms of different size, both in the aggregate and within particular industries. While few provisions of the UI system are based explicitly on firm size, it is likely that unemployment insurance affects small and large firms differently. For example, new firms of any size are not experience-rated; rather, they pay a standard tax rate for up to 5 years. If the standard rate is high, this require-

ment could place a heavy burden on small firms because new firms tend to
be small. On the other hand, a high tax rate would be justified if
small firms as a group generated large UI payouts.

State UI systems contain other provisions that might affect small
firms differently from large firms. While virtually all firms are
currently covered by the systems, very small firms are exempt. The
degree of experience rating--the magnitude of the increase in the tax
rate given an identical increase in benefit payments--differs across
states. Raising tax rates too much or too quickly could force small
firms into bankruptcy.

Our research has two primary goals. The first is to investigate
current UI systems. In particular, we will study whether tax rates,
layoff rates, and the net cost of UI (taxes minus benefits) vary
systematically with firm size. The second goal is to predict how
various changes in UI systems would affect small and large firms. The
recessions of the past 15 years have put heavy financial pressures on
the system; this situation has generated many proposals for reform.
Some reforms are likely to be more threatening to small business than
others.

The research is based on a unique data set--administrative records
of state UI systems. These records contain data for all the firms and
workers covered by UI laws. The states and years studied are:

California, 1979-82
Delaware, 1978-81
Texas, 1978-82.

These states represent the three most commonly used methods of
experience rating: the reserve ratio, benefit wage ratio, and benefit
ratio methods. The data are relatively recent, and should cover a long
enough time period to reveal any persistent patterns of cross-
subsidization. A sample of 43 two- and three-digit SIC groups was
chosen for study.

This report is organized as follows. First, some of the provisions
of UI systems with particular relevance to small business are discussed.
Second, the characteristics of the UI systems in California, Delaware,
and Texas are described. Third, the status of small business under the
present systems in those states is examined. Finally, the effects on
small business of various changes in the systems are predicted. A
glossary of UI terms is included at the end of the report.

SMALL BUSINESS AND THE PROVISIONS
OF THE UNEMPLOYMENT INSURANCE SYSTEM

This chapter addresses the question: do state unemployment insurance laws contain provisions which, in some sense, treat small businesses favorably or unfavorably?

Small businesses may be particularly affected by two features of unemployment insurance laws: (1) UI provisions do not cover all firms, and (2) "young" (that is, recently established) firms are treated differently from "old" or established firms. Let us examine these two points in turn.

EMPLOYER COVERAGE UNDER THE UI SYSTEM

While the original federal legislation excluded many small employers from the UI system, successive changes in the laws have substantially reduced the exclusions from coverage. Current federal law specifies that all employers (other than agricultural, domestic, or nonprofit employers) who employ one or more workers in each of 20 weeks, or who have $1,500 of payroll in a calendar quarter, are subject to the provisions of UI laws. Most states follow the federal definition of coverage.

Employers of domestic labor and nonprofit employers appear not to be too important in the present context. But the provisions regarding agricultural employers may have significant relevance. Typically, agricultural employers are covered if they employ at least 10 employees for 20 weeks or if their payroll is $20,000 (or more) in a calendar quarter. In six states, employers with even smaller employment levels and/or payrolls are also covered.

The exclusion of certain sectors from the provisions of the UI laws has a two-fold effect. First, since the employer is not subject to the UI tax, tax liabilities are reduced. This, by itself, tends to increase the operation's profitability relative to that of covered employers. Second, employees do not have the benefit of UI coverage, and hence they will tend to move to jobs in the covered sector. This, in turn, will tend to drive up the wages in the noncovered sector and, by itself, reduce the operation's profitability. The net effect of these two influences on profitability depends on the responsiveness of workers and the competitive conditions of the market.

EXPERIENCE RATING AND NEW EMPLOYERS

The U.S. UI system has the unique feature that its tax rate is experience rated, at least over some range. Experience rating means that the individual employer's tax rate (and, hence, tax bill) rises with the benefit payments to its ex-employees. Thus, if an employer

lays off a substantial number of employees who qualify for UI benefits, the employer's tax rate rises, usually after a considerable lag. Admittedly, the degree of experience rating is by no means complete in the sense that employers pay fully for all their ex-employees' UI benefits. Nevertheless, even incomplete experience rating should induce employers to reduce their layoffs as well as the layoff durations.

Under current experience rating systems, individual employers are assigned UI tax rates for a particular year that are based partially on the benefit payments made to their ex-employees over a specified preceding period. Usually, the benefits paid over the past 3 years or more enter into the computation of the current tax rate. While this method is workable for existing employers, it cannot be used for new employers who do not have 3 years' layoff experience. Since new employers also tend to be <u>small</u> employers, the provisions of the UI laws with respect to new employers seem to be of special relevance to small businesses.

Some evidence on the relationship between age and firm size is provided in table 1, which classifies the firms in our sample for Texas by age and number of employees. The table shows that small firms tend to be young, and even more strongly, new firms tend to be small.[1]

Two parameters of the experience rating system are of special relevance to new (and, hence, largely small) employers. They are (1) the initial non-experience-rated UI tax rates and (2) the number of years which have to elapse before the new employers' tax rates are experience rated. Let us discuss these two parameters in turn.

Initial Tax Rates

In determining tax rates for new businesses, state legislators seem to have been motivated by conflicting goals. On the one hand, in order to encourage new business, they have tended to fix relatively low initial tax rates. On the other hand, legislators are aware that many new businesses have relatively short lives and, hence, may generate an unusually large outflow of benefit payments. The high death rate of new firms would induce legislators to fix relatively high initial tax rates or, alternatively, to set them in relation to some anticipated layoff experience.

As a consequence of the conflicting goals as well as myriad differences among states, initial tax rates vary widely. Three types of systems for setting initial rates were in use in 1983:[2]

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1. We could not easily separate new firms that resulted from mergers from new firms with no prior existence. Therefore, table 1 probably understates the predominance of small firms among new firms.
2. Source: <u>Highlights of State Unemployment Compensation Laws</u> [6].

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TABLE 1

DISTRIBUTION OF FIRMS BY AGE AND SIZE: TEXAS, 1981

Firm size (no. of employees)	Age (years)[a]								Total
	0-1	1-2	2-3	3-4	4-5	5-10	10-25	25-50[b]	
0[c]	55	235	125	90	45	300	40		890
1-4	7,765	10,415	8,200	6,240	4,735	23,010	3,700	795	64,860
5-9	2,570	3,955	3,220	2,415	1,835	6,710	3,710	700	25,115
10-19	1,380	2,025	1,885	1,585	1,300	4,070	3,265	860	16,370
20-49	569	942	863	788	688	2,255	2,403	797	9,305
50-99	171	253	247	272	202	782	1,038	459	3,424
100-249	47	104	115	100	109	401	642	316	1,834
250-499	13	30	22	18	14	122	162	123	504
500-999	3	6	10	9	6	44	77	78	233
1,000-4,999	4	3	4	5	5	31	52	67	171
5,000+		1				2	7	20	30
Total	12,577	17,969	14,691	11,522	8,939	37,727	15,096	4,215	122,736

a. Firms out of business or not yet in business as of June 1981 are excluded.

b. Age is based on the length of time subject to UI laws, so no firm could be older than 45.4 years in mid-1981.

c. Firm size of zero means the firm reported no employment in 1981.

- In 32 states, the initial tax rate is a constant percentage fixed by law. The rates range from 1.8 percent in Iowa to 3.9 percent in Montana; the most common rate, 2.7 percent, is in effect in 18 states. In five of the 32 states, special rates apply to particular industries (typically the construction industry).

- In 12 states, the initial tax rate is the same for all new employers, but is linked to some measure of state-wide experience. For instance, a state-wide ratio of total benefits paid to a 5-year average of total taxable payrolls, subject to a minimum and maximum, is used in some states. Other states use the average contribution rate of all employers in the state. In others, the initial rate depends on the fund level or the rate schedule in effect. Virtually all states impose maximum and/or minimum initial tax rates. For instance, in Maine the initial rate is "the average contribution rate, but not higher than 3.0 percent or below 1.0 percent."

- In a relatively small number of states (6 in total) the initial tax rate is equal to the average tax rate in the new employer's industry. This arrangement seems to be of relatively recent origin. As in the state-wide systems discussed above, the industry-based initial tax rates are typically subject to minima and/or maxima.

The above classification of different methods of arriving at initial tax rates tends to conceal the complexity of the systems which are currently in existence. As in other areas of unemployment insurance, there seem to be no two states that have identical arrangements.

One question of interest when assessing the effect of UI on small business is: are tax rates for new employers "high" or "low"? Table 2 lists the tax rates for new employers in those states in which a standard rate applied, along with the minimum and maximum tax rates for experience-rated employers. On the whole, it does not appear that new firm tax rates are especially high or low relative to the rates on the tax schedule.[1] While the rates for new employers are close to the maximum rates for experience-rated employers in some states (Arizona, Montana, Oregon), in other states the new-firm rate is close to or below the minimum rate on the tax schedule (Massachusetts, Wyoming).

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1. One problem that arises in comparing columns 2 and 3 is that the tax rates for new employers do not include the "special" flat tax rates that exist in many states, while the tax rates for experience-rated employers do. That is, actual rates for new employers are understated in some cases.

TABLE 2

UI TAX RATES FOR NEW AND EXPERIENCE-RATED EMPLOYERS (PERCENT)[a]

State	Rates for new employers, 1983	Minimum and maximum rates for experience-rated employers, 1983	Average rate for all employers, 1982
Alabama	2.7	.5 – 4.0	2.33
Arizona	2.7	.1 – 2.9	1.19
Arkansas	2.7	.7 – 6.6	2.48
California	3.4	.7 – 4.9	2.80
Colorado	2.7	.3 – 4.5	1.02
Florida	2.7	.01 – 4.5	.96
Georgia	2.7	.06 – 5.38	1.37
Hawaii	3.0	1.0 – 4.5	1.85
Illinois	3.1	.6 – 5.7	3.79
Indiana	2.7	1.3 – 4.5	2.73
Iowa	1.8	0 – 6.0	2.27
Kentucky	3.0[b]	1.0 – 10.0	3.55
Massachusetts	2.0	2.6 – 6.4	3.22
Michigan	2.7[b]	1.5 – 10.5	3.91
Montana	3.9	1.9 – 4.4	2.09
Nebraska	2.7	.1 – 3.7	1.23
Nevada	3.0	.8 – 4.1	1.78
New Hampshire	2.7	.01 – 6.5	1.37
New Jersey	3.4	1.2 – 6.2	3.20
New Mexico	2.7	.6 – 4.2	1.68
North Carolina	2.7	.1 – 5.7	1.66
Oklahoma	3.1	.5 – 5.2	.85
Oregon	3.5[c]	2.2 – 4.0	2.85
Pennsylvania	3.5[b]	2.5 – 6.6	4.58
South Carolina	2.7	1.3 – 4.1	1.90
South Dakota	2.7	.7 – 8.2	1.32
Tennessee	2.7	.65 – 7.0	2.45
Texas	2.7	.4 – 6.55	.61
Vermont	3.2	1.7 – 6.0	3.06
West Virginia	3.7[d]	2.5 – 8.5	4.56
Wyoming	2.7	2.28 – 4.98	2.25

a. Sources: columns 2 and 3, Highlights of State Unemployment Compensation Laws [6]. Column 4, UI Financial Data [8].
b. Except construction.
c. Except agriculture.
d. Except out-of-state construction.

Beside knowing the minimum and maximum tax rates for experience-rated firms, it would be useful to know how firms are distributed along the tax schedule. Unfortunately, it is not easy to learn the average tax rate for experience-rated firms. It is, however, easy to find the average tax rate for all employers, which is a weighted average of the tax rates for new and experience-rated firms. This rate is shown in the last column of table 2.

In three-quarters of the states in the table, the tax rate for new employers exceeds the average tax rate for all employers, and thus by inference the average rate for experience-rated employers. If the 31 states in the table are representative, we would conclude that in most states, a new firm generally pays a higher tax rate than the average experience-rated firm.

The interesting question from a policy viewpoint is not necessarily how tax rates for new employers compare with those for old employers, but rather how the rates for new employers would change if experience rating began sooner. That is, do new firms deserve higher tax rates because of their unemployment experience? We will explore this question in more detail later, using data for Texas.

Qualifying Periods for Experience Rating

A new employer who is covered by the UI laws becomes subject to the tax no later than one completed calendar quarter after first hiring workers. Typically, however, any benefits paid to a new employer's laid-off workers are not charged to the firm until at least the third calendar quarter of the firm's existence. This is because, in most states, an employer has to have paid wages to the employees in their base periods in order to be charged with their UI benefits, and the base period is defined most frequently as the first 4 of the last 5 completed calendar quarters preceding the filing of an unemployment benefit claim. This means that the earliest possible date at which the employer might become experience rated is about 5 or 6 calendar quarters after first hiring employees. In practice, most states require at least 1 year of possible benefit charges before allowing the employer to have an experience-rated tax rate.

A frequency distribution of approximate qualifying periods for experience rating is presented in table 3.[1] The distribution is bimodal, the two modes occurring at 2.25 and 4.25 years. The arithmetic average is about 3 years, so that a typical new employer has to be in operation (and pay non-experience-rated UI taxes) for about 3 years before being assigned an experience-rated tax rate.

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1. In constructing the table, it was assumed that the length of time needed for a firm to become chargeable is the same in all states. In actuality, this time period varies from state to state, as does the lag between the computation date and the effective date for new tax rates.

What conclusions can be drawn from this discussion of the legal provisions for experience rating of new and, hence, presumably small employers? First, experience rating is suspended for new employers for a relatively long period. To the extent that experience rating is regarded as desirable, the minimum period required for its inception should, therefore, be reduced. Second, in the initial period during which experience rating is suspended, new employers are assigned fixed tax rates. These tax rates differ widely from state to state; in some they are less than 2 percent and in others, nearly 4 percent. For construction employers, the rates are higher than 5 percent in some states. These initial fixed tax rates may not be appropriate or fair for new employers.

TABLE 3

MINIMUM QUALIFYING PERIOD FOR EXPERIENCE RATING[a]

Years	Number of states[b]
1.25	2
1.75	1
2.25	23
2.33	1
2.75	1
3.25	7
3.75	1
4.25	12
5.25	2
6.25	1

a. Approximate minimum number of years which must elapse before a new employer may be assigned an experience-rated tax rate.
b. Including the District of Columbia.

FEATURES OF STATE UI SYSTEMS

In this chapter we describe the major tax and benefit provisions of the unemployment compensation systems in the three states being studied: California, Delaware, and Texas.[1] The information is drawn primarily from state laws—that is, it describes how the systems should operate and not necessarily how they actually do operate.[2] Before describing the three state systems, we briefly discuss the different methods of experience rating used in the United States.

METHODS OF EXPERIENCE RATING

Federal law specifies that in order for employers to receive a credit against the federal UI tax, states must have some system for experience rating. But the exact system can be chosen by the states. Currently, four very different methods are in use: the reserve ratio, benefit ratio, benefit wage ratio, and payroll variation methods. Table 4 shows which method was used in each of the states as of 1983.

The reserve ratio method has historically been the most common; it is currently used by 31 states plus the District of Columbia. Under this system, each employer has an account to which tax payments are credited and charged benefits are debited. The balance in an employer's account—the sum of all taxes ever paid minus all benefits ever charged to the firm—divided by some measure of taxable payroll, equals the firm's reserve ratio. A firm's UI tax rate varies inversely with its reserve ratio.

The benefit ratio method is the second most common, being used by 12 states. Under this system, a firm's unemployment experience is measured by its benefit ratio, which is the ratio of UI benefits charged to the firm over the past 3-5 years (depending on the state) to the firm's taxable payroll during the same period. The higher a firm's benefit ratio, the higher its tax rate will be.

The benefit wage ratio method is used by four states. Benefit wages are the wages earned by an individual during his base period, counted up to the taxable wage base for each employer. When an individual becomes unemployed, each of his base-period employers is charged with the portion of the individual's benefit wages that was earned from that employer. A firm's benefit wage ratio is the ratio of

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1. Providing an exhaustive description of the UI system is beyond the scope of this study. Useful information can be found in Becker [1], [6], and [7].
2. Specifically, the sources are: West's Annotated California Codes, West Publishing Company, St. Paul, MN; Delaware Code Annotated, The Michie Company, Charlottesville, VA; Vernon's Annotated Revised Civil Statutes of the State of Texas, West Publishing Company, St. Paul, MN.

TABLE 4

STATE METHODS OF EXPERIENCE RATING, 1983[a]

State	Method[b]	State	Method[b]
Alabama	BWR	Montana	RR
Alaska	PV	Nebraska	RR
Arizona	RR	Nevada	RR
Arkansas	RR	New Hampshire	RR
California	RR	New Jersey	RR
Colorado	RR	New Mexico	RR
Connecticut	BR	New York	RR
Delaware	BWR	North Carolina	RR
Florida	BR	North Dakota	RR
Georgia	RR	Ohio	RR
Hawaii	RR	Oklahoma	BWR
Idaho	RR	Oregon	BR
Illinois	BWR	Pennsylvania	BR
Indiana	RR	Rhode Island	RR
Iowa	RR	South Carolina	RR
Kansas	RR	South Dakota	RR
Kentucky	RR	Tennessee	RR
Louisiana	RR	Texas	BR
Maine	RR	Utah	PV
Maryland	BR	Vermont	BR
Massachusetts	RR	Virginia	BR
Michigan	BR	Washington	PV
Minnesota	BR	West Virginia	RR
Mississippi	BR	Wisconsin	RR
Missouri	RR	Wyoming	BR

a. Source: <u>Highlights of State Unemployment Compensation Laws</u> [6].
b. RR = reserve ratio, BR = benefit ratio, BWR = benefit wage ratio, PV = payroll variation.

its benefit wages during the past 3 years to taxable payroll during the same period. The firm's UI tax rate depends positively on its benefit wage ratio.

The payroll variation method is currently used in only three states. Under this system, an employer's unemployment experience is measured by the percentage decline in payroll from quarter to quarter or year to year. The smaller the decline in payroll, the lower a firm's UI tax rate will be.

This brief description of experience rating systems shows how widely they differ in their definition of a firm's experience with unemployment. Taxes paid by a firm only affect the experience measure in reserve ratio states; UI benefits only affect experience in reserve ratio and benefit ratio states. In benefit wage ratio and payroll variation states, it is the incidence of unemployment—measured by the wages of those who become unemployed—rather than the duration that affects the measure of unemployment experience.

CALIFORNIA

Tax Provisions

The two components of UI taxes are taxable payroll and the tax rate. The UI parameter that determines taxable payroll is the taxable wage base.

Taxable Wage Base

The taxable wage base $(\tilde{w})$ is the amount of an employee's annual earnings from a given firm that is subject to the UI tax. The wages of every individual employed by a firm count toward that firm's taxable payroll, even if the individual is employed by more than one firm in a calendar year. Thus, if w_{ij} is the amount earned by individual i from firm j, the taxable payroll of firm j is

$$W_j = \sum_{i \in A} w_{ij} + \sum_{i \in B} \tilde{w}$$

where A is the set of employees whose earnings from firm j are less than the taxable wage base, and B is the set of employees whose earnings equal or exceed $\tilde{w}$.

Federal law sets the minimum taxable wage base, but states are free to use a higher base. The federal wage base was originally (1938-39) equal to total payroll. In 1940 it was changed to $3,000, and it was subsequently raised to $4,200 in 1972, $6,000 in 1978, and $7,000 in 1983. Thus, except in the earliest years of the UI system, the federal taxable wage base has been substantially lower than average annual earnings.

California maintained a taxable wage base equal to the federal minimum until 1960. Between 1960 and 1971, its wage base ranged from $3,600 to $4,100. From 1976 to 1982, the following rule was used to determine the taxable wage base: if total revenues of the state Unemployment Fund were less than total disbursements during the year

ending on the computation date (June 30),[1] the wage base for the following calendar year would be $7,000; otherwise it would be $6,000. This rule resulted in a wage base equal to $7,000 in 1976-77 and $6,000 in 1978-82.

Determination of Tax Rates

Experience-Rated Firms. California uses the reserve ratio method of experience rating. The numerator of the reserve ratio (RR) is the firm's reserve account balance (BAL) as of the computation date, while the denominator is average taxable payroll (W) in the 3 calendar years preceding the computation date:

$$RR_t = \frac{BAL_t}{\frac{1}{3} \sum_{i=1}^{3} W_{t-i}} \ .$$

The tax rate has two components, the basic contribution rate and the balance account rate. The basic contribution rate (τ_1), when multiplied by taxable payroll, equals the taxes that are credited to the firm's own account. The reserve ratio determines the basic contribution rate for the following calendar year:

$$\tau_{1t} = f(RR_{t-1})$$

with $f' \leq 0$.

During our period of study (1979-82) there were two schedules relating the reserve ratio and the basic contribution rate in California (see table 5). The schedule in effect in a given year depended on whether the state reserve ratio was high or low; for example, the low schedule was in effect in 1980, 1981, and 1982. Because the schedules have both a minimum and a maximum tax rate,[2] experience rating ceases to operate--that is, changes in a firm's account balance do not affect its tax rate--once the firm achieves a very high or low reserve ratio.

The balance account tax rate (τ_2) is added to the basic contribution rate to determine a firm's total tax liability. However, balance account taxes are not credited to the firm's account, but rather to the balancing account. This account was established in 1961 as a

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1. The calculations needed to determine tax rates and other parameters of a state's UI system are performed as of the computation date, while new parameters go into effect on the effective date (generally January 1).
2. As do the tax schedules in virtually all states.

TABLE 5

TAX SCHEDULES IN CALIFORNIA, 1976-82

Range of Reserve Ratios	Tax rate (%)	
	Low schedule	High schedule
-.10 or less	3.3	3.9
(-.10)-0	3.1	3.7
.00-.01	2.9	3.5
.01-.02	2.7	3.4
.02-.03	2.6	3.3
.03-.04	2.5	3.2
.04-.05	2.4	3.1
.05-.06	2.3	2.9
.06-.07	2.2	2.7
.07-.08	2.0	2.5
.08-.09	1.8	2.3
.09-.10	1.6	2.1
.10-.11	1.4	1.9
.11-.12	1.2	1.7
.12-.13	1.0	1.5
.13-.14	.8	1.3
.14-.15	.6	1.1
.15-.16	.4	.9
.16-.17	2	.8
.17-.18	0	.7
.18-.19	0	.6
.19-.20	0	.5
.20 or more	0	.4

means of accounting for those items of income or expense not easily allocated to individual reserve accounts, such as interest earned by the Unemployment Fund, balances in inactive accounts, and noncharged benefits. It is interesting to note that California abolished the balancing account on an experimental basis in 1983. Items formerly charged or credited to that account are now divided among active employer accounts.

Unlike τ_1, τ_2 is generally the same for all firms.[1] Its level in a given year depends on the ratio of balancing account charges to credits in the preceding 3 years. τ_2 can range from 0.1 percent to 1.0 percent. In 1981 it was 0.7 (or 0.5 if eligible for a reduction), and in 1982 it was 0.9 (or 0.8).

---

1. Fast-growing firms and employers with no charged benefits in the previous year are given a reduction in the rate.

New Firms. During our period of study, new firms in California paid a basic contribution rate of 2.7 percent (changed to 3.4 percent beginning in 1983). To be eligible for experience rating, an employer must have been subject to benefit charges for at least 12 complete consecutive calendar months as of the computation date.[1] While this seems like a relatively short period of time, in practice 2 to 3 years can elapse from the time a firm starts business to the time it begins paying taxes that are experience rated. First, there is a lag of 4 to 7 months between the time a firm begins operations and the time its account can be charged with UI benefits.[2] Second, since tax rates are computed only once a year, some firms will just miss meeting the 12-month criterion on a given computation date. Finally, there is a 6-month lag between the computation date and the effective date for new tax rates.

Benefit Provisions

We turn now from the firm to the UI claimant. We will discuss three major determinants of the amount of benefits a claimant receives: eligibility, the weekly benefit amount (wba), and the potential duration of benefits. Objective criteria exist for the determination of these variables. The application of other benefit provisions, such as those governing disqualifications and noncharging of benefits, is more open to the discretion of those administering the laws, and so little insight is gained by examining state laws.

UI benefit provisions are stated in terms of a claimant's base period and benefit year. The base period is a 1-year period—generally the first 4 of the last 5 completed calendar quarters—preceding the first spell of unemployment. The benefit year is a 1-year period generally beginning at the same time as the first spell of unemployment. Eligibility for benefits, the weekly benefit amount, and potential duration depend on earnings during the base period, and the initial determinations of these variables apply to the entire benefit year. That is, the wba is the same in all spells of unemployment during a benefit year (even if there has been intervening employment), while potential duration refers to the total number of weeks of benefits that can be received in all spells combined.

Benefits are generally based on either total base-period earnings or high-quarter earnings—wages in that quarter of the base period when

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1. Prior to 1974, the requirement was 12 calendar quarters.
2. This is because benefits are charged only to base-period employers, and a claimant's base period ends 4 to 7 months before the beginning of his benefit year.

wages were highest. In trying to understand state laws, it is useful to express base-period earnings (w) as a multiple of high-quarter earnings (q):

$$w = kq$$

with $1 \leq k \leq 4$.

$k = 1$ implies the individual worked only one quarter during his base period, while $k = 4$ means he earned the same amount in each quarter. Many benefit provisions penalize claimants who only worked during part of their base period, i.e., those with low values of k.

Eligibility

Eligibility requirements and the formula for the weekly benefit amount, being specified in nominal dollars, tend to be changed frequently in response to inflation and other factors. In California, the minimum earnings requirements for an individual to be able to receive unemployment compensation changed twice during our period of study. For benefit years beginning before May 1, 1981, an individual had to have earned at least $900 during his base period. From May 1, 1981 to January 1, 1982, an individual had to meet at least one of the following conditions: (a) he earned at least $20 in each of 8 or more weeks, and had total base-period earnings of at least $900; (b) he had total base-period earnings of at least $1,100. The eligibility requirements for benefit years starting in 1982 were similar, except that criterion (b) was changed to $1,200.

Weekly Benefit Amount

In California, the weekly benefit amount is a nonlinear function of high-quarter earnings. The greater q is, the lower wba is as a fraction of q. In 1982, for example, the weekly benefit amount ranged from 4.3 percent to 2.9 percent of high-quarter earnings, with a minimum of $30 and a maximum of $136.

Duration of Benefits

The potential duration of UI benefits can be inferred from provisions regarding the maximum amount of benefits payable during a benefit year: potential duration equals the maximum benefit amount divided by the weekly benefit amount. In California, the maximum benefit amount is the lower of (a) 26 times the weekly benefit amount or (b) half of base-period wages. This definition, together with other

benefit provisions,[1] implies that duration can range from 12 to 26 weeks. Duration is less than 26 weeks for claimants with low high-quarter earnings and/or an uneven pattern of earnings in the base period.

Like most states, California defines the first week of the benefit year as a noncompensable "waiting week." Thus, for every claimant, the length of time unemployed is greater than the number of weeks in which benefits are paid.

Summary

Table 6 provides some historical UI data for California. It shows that, despite the recessions of the 1970s and early 1980s, California has maintained a healthy—one might even say excessive—UI fund balance.

TABLE 6

CALIFORNIA UI FINANCIAL DATA, 1970-82[a] ($000)

Year	UI taxes	UI benefits[b]	Reserve balance (Dec. 31)
1970	510,570	660,938	1,218,855
1971	456,551	828,137	904,740
1972	647,849	624,641	975,085
1973	770,168	593,297	1,221,014
1974	722,443	876,485	1,153,218
1975	802,308	1,449,782	545,694
1976	1,328,424	1,264,548	641,259
1977	1,532,871	1,135,945	1,087,930
1978	1,581,169	999,294	1,755,812
1979	1,688,344	861,946	2,737,865
1980	1,452,187	1,402,402	3,087,861
1981	1,349,506	1,447,349	3,352,970
1982	1,438,991	2,392,109	2,707,650

a. Source: Unemployment Insurance Financial Data [8].
b. Regular benefits plus state share of extended benefits.

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1. Such as the minimum earnings requirement and the relationship between high-quarter earnings and the weekly benefit amount. It is fairly easy to show that 26 weeks is the maximum potential duration, but somewhat complicated to derive the minimum duration.

DELAWARE

Tax Provisions

Taxable Wage Base

Delaware maintained a taxable wage base equal to the federal minimum until 1955. From 1955 until the federal minimum increased in 1972, the wage base was $3,600. During the period of study (1978-81), the taxable wage base was $6,000; in 1982 it was raised to $6,600.

Determination of Tax Rates

Experience-Rated Firms. Delaware uses the benefit wage ratio system of experience rating. Three years of benefit wages (BW) and 3 years of taxable payroll (W) are used in the computation of a firm's benefit wage ratio (BWR):[1]

$$BWR_t = \frac{\sum_{i=1}^{3} BW_{t-i}}{\sum_{i=1}^{3} W_{t-i}} .$$

A firm's total tax rate consists of two parts, the basic assessment rate and the supplemental assessment rate. The basic assessment rate (τ_1) depends on the firm's benefit wage ratio and the state experience factor (SEF), which is the statewide ratio of total benefits to total benefit wages in the most recent 3 years.[2] Simply stated, the tax rate is the product of these two ratios:

$$\tau_{1jt} = (SEF_t)(BWR_{jt}) , \quad \text{where } SEF_t = \frac{\sum_{i=1}^{3} BEN_{t-i}}{\sum_{i=1}^{3} \sum_{j} BW_{j,t-i}}$$

where i and t refer to years and j to firms.[3] Two limits apply to this formula. First, there is a maximum value of the state experience factor which is used in the calculation of the tax rate. Second, there is a maximum value of the tax rate (the minimum value is 0.1 percent, which is virtually zero).

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1. Technically, the numerator and denominator are computed on an experience-year rather than a calendar-year basis. During our period of study, an experience year ran from October 1 (the computation date) to September 30.
2. Again, the numerator and denominator refer to experience years.
3. Variables with only a time subscript refer to the state as a whole.

Besides the basic assessment rate, there is a supplemental assessment rate (τ_2) which is the same for all firms. The formula for the supplemental assessment rate is quite complicated. Basically, it depends on how much the actual UI fund balance for the state has fallen short of the "safety balance" during the previous 3 years. The maximum value of the supplemental assessment rate is 1.5 percent.

The formula for the basic assessment rate should lead to equality between the state's benefit outflows and its tax inflows in the long run. For example, if each firm's taxable payroll were constant over time, the total amount of basic taxes received from all firms would be

$$
\sum_j TAX_{jt} = \sum_j (\tau_{1jt})(W_{jt})
$$

$$
= \left[\frac{\sum_i BEN_{t-1}/3}{\sum_i \sum_j BW_{j,t-1}/3} \right] \sum_j \left[\frac{\sum_i BW_{j,t-1}/3}{\sum_i W_{j,t-1}/3} \right] W_{jt}
$$

$$
= \frac{\sum_i BEN_{t-1}}{3} .
$$

That is, the tax received in year t would equal the average benefits paid in the 3 preceding years. The existence of a supplemental assessment rate should increase the ability of the UI system to maintain an adequate fund balance.

In practice, however, the maxima which apply to the calculation of these tax rates have greatly affected the ability of taxes to rise in response to increased benefits. During our period of study, the maximum value of the state experience factor used to compute τ_1 was 0.20. The second column of table 7 indicates that basic tax rates would have been about twice as high if the actual state experience factor had been used in this computation. The third column of the table shows that the supplemental assessment rate would have reached unprecedented heights if it had not been limited to 1.5 percent.

TABLE 7

PARAMETERS AFFECTING UI TAXES IN DELAWARE[a]

Year	State experience factor	Unrestricted supplement assessment rate (%)	Maximum tax rate (%)
1978	.44	10.2	3.0
1979	.44	9.0	3.0
1980	.35	8.7	5.0
1981	.31	9.4	5.0

a. Source: letter from John Bishop, Manager, Delaware UI Technical Services.

New Firms. During the period of study (1978-81), the basic assessment rate for new employers in Delaware was 2.7 percent. This was the "standard" rate of assessment, although it was high relative to the maximum of 3.0 percent in effect during 1978 and 1979. Beginning in 1982, the tax rate for a new employer is the average tax rate for the firms in that employer's industry (2-digit SIC group).

In 1978 and 1979, 4 years of experience were required before an employer could become experience rated; this requirement was changed to 3 years for 1980 and beyond. The law does not require full years of experience; moreover, "experience" is defined as "having employment" (that is, employing workers) rather than being subject to benefit charges. Thus, under the 1978-1979 provisions, a firm could begin paying experience-rated taxes as early as 3 years and 4 months after beginning operations, and no later than 4 years and 3 months after starting up. The 1980-81 provisions, with their 1-year reduction in needed experience, are in practice comparable to California's require-ments.

Benefit Provisions

Delaware's UI benefit provisions, like those in most states, are very complicated. The many changes in them over time may reflect a conflict within the state legislature between the desire to be generous to the unemployed and the inability to pay for this generosity.

Eligibility

To be eligible for UI benefits, an individual must have earned at least $720.during his base period. In addition, his base-period wages must equal or exceed 36 times his weekly benefit amount minus $180. If base-period wages are less than 36 times the wba--a situation which requires an uneven pattern of earnings during the base period--the wba is reduced by up to $5.

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During most of our period of study, special eligibility provisions applied to seasonal workers. The law defined seasonal employment as being provided only by industries involved in the first processing of agricultural and seafood products. (In our sample of industries SIC 201, Meat Products, and SIC 203, Preserved Fruits and Vegetables, seem likely candidates for seasonal industries.) If a claimant earned more than 75 percent of his base-period wages in seasonal employment, he needed only $300 of base-period earnings to qualify for benefits. However, he could receive benefits in a given calendar month of his benefit year only if he was employed in that calendar month during his base period. The seasonal provisions of the system were deleted as of July 1, 1981.

Weekly Benefit Amount

During most of our period of study, a claimant's weekly benefit amount was calculated as 1/26 times high-quarter wages. For weeks of unemployment beginning July 1, 1981, the formula for the wba was changed to 1/104 times total base-period wages. This change in the formula leads to a lower wba for all claimants with an uneven pattern of earnings during their base period.

The weekly benefit amount is subject to a minimum and maximum. The minimum was $20 during 1978-81. The maximum was $140 from January 1, 1978 to June 30, 1979, and $150 thereafter.

Duration of Benefits

In Delaware an eligible individual can receive UI benefits immediately; that is, there is no noncompensable waiting week at the beginning of the benefit year. The potential duration of benefits is not the same for all claimants. As in California, the maximum amount of benefits a claimant can receive during his benefit year equals the lesser of (a) 26 times his weekly benefit amount or (b) 50 percent of his base-period wages. This definition, together with other benefit provisions, implies that potential duration can range from 18 to 26 weeks. Duration is less than 26 weeks for claimants with low base-period earnings and/or an uneven pattern of earnings.

Summary

Table 8 provides historical UI data for Delaware. The consequences of the restrictions on tax rates mentioned earlier are clear. UI benefits increased substantially beginning in 1974, but taxes increased

TABLE 8

DELAWARE UI FINANCIAL DATA, 1970-82[a] ($000)

Year	UI taxes	UI benefits[b]	Reserve balance[c] (Dec. 31)
1970	7,430	10,504	22,283
1971	9,984	12,561	20,740
1972	16,250	10,860	27,220
1973	19,929	9,922	38,901
1974	18,823	24,768	35,091
1975	16,931	52,339	395
1976	20,623	41,089	-18,102
1977	22,326	35,492	-32,300
1978	31,014	30,355	-31,237
1979	32,254	30,544	-29,929
1980	35,124	43,857	-36,854
1981	35,057	46,954	-43,760
1982	43,792	42,380	-34,795

a. Source: Unemployment Insurance Financial Data [8].
b. Regular benefits plus state share of extended benefits.
c. Excluding loans from Federal Trust Fund.

very little until 1978, by which time the fund balance had declined by over $65 million. As of the end of 1982, Delaware had accumulated almost $54 million in loans from the Federal Unemployment Trust Fund.[1]

TEXAS

Tax Provisions

Taxable Wage Base

Texas has restricted its taxable wage base to the federal minimum since the UI system began. Thus, during our period of study (1978-82), the taxable wage base was $6,000.

Determination of Tax Rates

Experience-Rated Firms. Texas uses the benefit ratio method of experience rating.[2] A firm's benefit ratio (BR) is the ratio of UI benefits charged to the firm in the 3 years preceding the computation date (October 1) to taxable payroll during the same period:

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1. The Federal Unemployment Trust Fund is where state and federal UI taxes are deposited. For a description of its workings, see [7, pp. 11-17].
2. Texas used the benefit wage ratio method until the late 1960s.

$$BR_t = \frac{\sum_{i=1}^{3} CBEN_{t-i}}{\sum_{i=1}^{3} W_{t-i}},$$

where CBEN = charged benefits or chargebacks.

A firm's UI tax rate (τ) depends on its benefit ratio and the state replenishment ratio (REP), which is the ratio of total UI benefits paid to chargebacks during the year ending on the computation date Basically, τ is the product of these two ratios

$$\tau_{jt} = (REP_t)(BR_{jt}) \quad \text{where} \quad REP_t = \frac{TBEN_{t-1}}{\sum_j CBEN_{j,t-1}}.$$

The replenishment ratio will be greater than 1 because of noncharged benefits.

Like the benefit wage ratio system, the benefit ratio system has a tendency to generate taxes that are equal to benefit outflows For example, if each firm's taxable payroll and charged benefits for the state as a whole were constant over time, the total tax received from all firms would be:

$$\sum_j TAX_{jt} = \sum_j \tau_{jt} W_{jt}$$

$$= \left[\frac{TBEN_{t-1}}{\sum_j CBEN_{j,t-1}} \right] \sum_j \left[\frac{\sum_i CBEN_{j,t-1}/3}{\sum_i W_{j,t-1}/3} \right] W_{jt}$$

$$= TBEN_{t-1}.$$

That is, the tax received in year t would equal the total benefits paid in the preceding year.

During most of our period of study, Texas did not have a separate flat tax rate like the balance account tax rate in California or the supplemental assessment rate in Delaware.[1] There were, however, provisions for general increases or reductions in the tax rate--a shifting of the tax schedule--for experience-rated employers. If the UI fund balance on October 1 exceeded $325 million, tax rates for the following calendar year would be reduced by 0.1 percent for each $5 million by

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1. Temporary tax rates to pay interest on loans from the Federal Unemployment Trust Fund were instituted in the last quarter of 1982. Beginning in 1984 a permanent extra tax, the replenishment tax, must also be paid.

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which the balance exceeded $325 million (but not by more than 2.2 percent). On the other hand, if the balance was less than $225 million, tax rates would be increased by 0.1 percent for each $5 million by which the balance fell short of $225 million. The lowest permissible tax rate under any circumstances was 0.1 percent; the maximum was 4 percent unless there was a general rate increase.

New Firms. A new employer in Texas pays a contribution rate of 2.7 percent. Neither the general tax rate increases or reductions, nor the flat taxes that have been imposed since late 1982, have applied to new employers.[1]

An employer must have been subject to benefit charges for at least 4 full consecutive calendar quarters before he can become experience rated. Unlike California, where an employer's eligibility for experience rating is determined only once a year, Texas allows eligibility to be determined at the close of any calendar quarter. The experience-rated tax rate is computed at the beginning of the quarter following attainment of eligibility and becomes effective immediately. Thus, only 15 to 18 months need elapse from the time a firm begins operations to the time it begins paying experience-rated taxes.

Benefit Provisions

Eligibility

To be eligible for UI benefits, an individual must meet one of two conditions: (a) he must earn at least $500 during his base period, and base-period wages must equal or exceed 1.5 times high-quarter wages (i.e., $k \geq 1.5$), or (b) he must earn two-thirds of the FICA taxable wage base.

Weekly Benefit Amount

The weekly benefit amount is calculated as 1/25 of high-quarter earnings. For UI claims filed on or before October 1, 1977, the minimum wba was $15 and the maximum wba was $84. Each October 1 since then, the minimum has been increased by $1, and the maximum by $7, for each $10 by which the average weekly wage of manufacturing production workers has risen. By late 1982, the minimum wba had risen to $27 and the maximum to $168.

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1. In contrast, the tax rate for new firms in California and Delaware equals the 2.7 percent basic rate plus the balance account tax rate (or supplemental assessment rate).

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Duration of Benefits

In Texas there is a one-week waiting period at the beginning of the benefit year. Initially, no benefits are paid with respect to this week. If, however, a claimant is still unemployed after 3 times the weekly benefit amount has been paid, he is paid for the waiting week; that is, the waiting week becomes "compensable."

The maximum benefit amount is the lesser of (a) 26 times the weekly benefit amount or (b) 27 percent of base-period earnings. When combined with the other benefit provisions, this provision implies that potential duration can range from 10 to 26 weeks. As in the other two states, only those claimants with high earnings and/or a relatively even pattern of earnings are eligible for 26 weeks of benefits. Because condition (b) above is stricter in Texas than in California or Delaware, we expect a smaller proportion of claimants in Texas to qualify for 26 weeks, ceteris paribus.

Summary

Table 9 contains recent UI data for Texas. The state had a relatively stable fund balance in the 1970s, with taxes responding quickly to the increase in benefits in the middle of the decade. The fund was not, however, prepared for the large and sudden decline in the oil industry in 1982. As of the end of that year Texas had borrowed about $143 million from the Federal Unemployment Trust Fund.

TABLE 9

TEXAS UI FINANCIAL DATA, 1970-82[a] ($000)

Year	UI taxes	UI benefits[b]	Reserve balance[c] (Dec. 31)
1970	23,826	61,694	337,292
1971	24,753	80,778	293,725
1972	57,628	78,673	289,041
1973	85,622	65,127	324,808
1974	78,493	79,202	343,116
1975	60,257	195,591	230,602
1976	108,844	146,237	204,827
1977	172,433	142,037	248,853
1978	219,792	139,048	346,260
1979	186,721	162,826	396,604
1980	110,647	263,155	274,701
1981	200,237	244,084	253,841
1982	228,770	634,452	-401

a. Source: Unemployment Insurance Financial Data [8].
b. Regular benefits plus state share of extended benefits.
c. Excluding loans from Federal Trust Fund.

INDUSTRIES STUDIED

In this section we introduce the industries chosen for study, compare them to the state as a whole, and present the small business share of each.

Table 10 lists the 43 industries--4 two-digit and 39 three-digit-- by major industry category. All major categories were sampled except agriculture, mining, and government. An attempt was made to choose a representative sample of industries, so that the results could be generalized to the state as a whole. Employment in the sample industries equals 41 percent of total state employment in California, 60 percent in Delaware, and 39 percent in Texas.[1]

Table 11 shows the distribution of employment among the six major industry categories calculated using all the industries in each category and only the sample industries. In Delaware the sample seems overrepresentative of manufacturing, while in California and Texas it seems overrepresentative of wholesale and retail trade. The table also illustrates the differences in industrial mix among the three states. Delaware has a relatively high concentration of employment in manufacturing, California in services, and Texas in trade. These differences could have some role in explaining the patterns of cross-subsidization discussed later.

TABLE 10

SAMPLE OF INDUSTRIES

CONSTRUCTION
      152 Residential Building Construction
      154 Nonresidential Building Construction
      161 Highway and Street Construction
      171 Plumbing, Heating, and Air Conditioning

MANUFACTURING
      201 Meat Products
      203 Preserved Fruits and Vegetables
      22   Textile Mill Products
      23   Apparel and Other Textile Products
      26   Paper and Allied Products
      271 Newspapers
      281 Industrial Inorganic Chemicals
      282 Plastics Materials and Synthetics
      286 Industrial Organic Chemicals

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1. Due to the volume of data being discussed, we will generally present data for only one year for each state. Unless otherwise indicated, the year is 1981 for California and Texas, and 1980 for Delaware.

TABLE 10 (Cont'd)

291   Petroleum Refining
331   Blast Furnace and Basic Steel Products
344   Fabricated Structural Metal Products
356   General Industrial Machinery
367   Electronic Components and Accessories
371   Motor Vehicles and Equipment

TRANSPORTATION AND PUBLIC UTILITIES
421   Trucking, Local and Long Distance
48   Communication

WHOLESALE TRADE
501   Motor Vehicles and Automotive Equipment
508   Machinery, Equipment, and Supplies
512   Drugs, Proprietaries, and Sundries
514   Groceries and Related Products

RETAIL TRADE
531   Department Stores
541   Grocery Stores
551   Motor Vehicle Dealers
554   Gasoline Service Stations
581   Eating and Drinking Places

FINANCE, INSURANCE, AND REAL ESTATE
602   Commercial and Stock Savings Banks
631   Life Insurance
651   Real Estate Operators and Lessors

SERVICES
701   Hotels, Motels, and Tourist Courts
721   Laundry, Cleaning, and Garment Services
723   Beauty Shops
734   Services to Buildings
736   Personnel Supply Services
794   Commercial Sports
801   Offices of Physicians
805   Nursing and Personal Care Facilities
811   Legal Services
891   Engineering and Architectural Services

TABLE 11

DISTRIBUTION OF EMPLOYMENT AMONG MAJOR INDUSTRY CATEGORIES (Percent)

Industry category	California, 1981		Delaware, 1980		Texas, 1981	
	State[a]	Sample	State[a]	Sample	State[a]	Sample
Construction	5.0	4.7	6.9	5.6	8.8	6.9
Manufacturing	24.7	15.7	33.1	52.6	22.8	19.1
Transportation	6.8	7.4	5.7	4.3	7.8	7.8
Trade	28.1	38.7	26.2	22.9	30.9	40.7
Finance	7.8	9.6	5.7	4.6	7.2	7.1
Services	27.6	23.8	22.4[b]	10.0	22.4	18.4
Total	100	100	100	100	100	100

a. Source: Employment and Earnings, May issues.
b. Mining included with services.

Table 12 presents the small business share of each industry in each state, calculated as the percent of industry employment in firms with fewer than 100 employees.[1] In each state, the small business share ranges virtually from 0 to 100 percent across industries. Extreme values are more common in Delaware, which had a more limited distribution of firms among size classes than the other two states. Surprisingly, Delaware, which is much smaller than California or Texas, has the lowest overall share of small business in employment. This is probably due to the dominance of manufacturing industries in Delaware.

1. Appendix A contains data on the number of firms and employment by industry and size class; these data can be used to construct alternative measures of the small business share. In this and subsequent tables, the heading "Industry" is used to represent SIC codes.

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TABLE 12

SMALL BUSINESS SHARE IN SAMPLE INDUSTRIES (Percent)

Industry (SIC Code)	California, 1981	Delaware, 1980	Texas, 1981
152	92.4	92.1	98.4
154	49.8	75.5	62.8
161	71.3	24.8	50.1
171	81.8	78.7	81.7
201	27.3	3.0	18.2
203	8.6	31.9	10.4
22	45.0	53.8	22.3
23	63.3	53.2	18.5
26	28.7	12.6	15.8
271	22.3	19.2	24.5
281	20.6	10.9	10.2
282	23.3	.9	1.3
286	37.1	.2	1.4
291	1.0	.1	2.7
331	19.7	4.0	3.0
344	45.4	39.8	45.9
356	39.6	33.8	41.8
367	18.5	0	6.6
371	27.3	.4	22.5
421	57.6	75.9	47.0
48	8.2	12.9	19.3
501	70.3	100	77.9
508	70.9	61.2	59.3
512	47.8	22.6	54.6
514	50.0	74.8	53.3
531	0.4	5.5	2.8
541	27.9	41.7	28.6
551	82.9	100	67.5
554	88.8	100	81.3
581	60.5	77.0	58.5
602	4.2	9.7	51.6
631	13.4	51.8	19.5
651	27.8	89.5	77.9
701	34.9	46.8	37.5
721	68.7	88.3	72.6
723	87.2	100	90.6
734	52.6	36.2	41.9
736	22.4	38.6	27.6
794	32.1	26.3	39.0
801	27.7	100	94.8
805	29.9	58.6	36.2
811	77.2	100	86.7
891	60.2	67.5	63.1
Aggregate	39.4	28.4	44.2

Some industries-- especially Residential Construction (SIC 152), Plumbing (171), Newspapers (271), Petroleum Refining (291), Fabricated Metals (344), General Industrial Machinery (356), Department Stores (531), and Engineering Services (891)--have very similar small business shares across states. In others, the small business shares are quite different in the three states. The most striking example of this diversity is Highway Construction (SIC 161), but Banks (602), Life Insurance (631), Real Estate (651), and Physicians' Offices (801) also exhibit a wide range. Possible reasons for the divergence in small business shares include historical accident and state laws. For example, limits on branch banking in Texas may explain the high share of small business in SIC 602 in that state. In any case, it does not seem that the nature of an industry dictates a particular distribution of firm sizes.

We turn now to an examination of the effects of the unemployment insurance system on small and large firms.

SMALL BUSINESS UNDER CURRENT UI SYSTEMS

In this chapter we summarize the experience of firms of different size under currently existing unemployment insurance systems. The goal is to learn whether small business is, in some sense, treated unfairly by the present system. Three variables will be examined in detail: the layoff rate, the UI tax rate, and the net cost of UI.

The layoff rate is useful for determining whether firms of different size place different demands on the UI system. The ideal measure of layoffs would include all individuals who were laid off by their employers, whether or not they applied for (or received) UI benefits. Each spell of unemployment would count as a separate layoff. Unfortunately, because the data come from UI administrative records, we were not able to measure layoffs perfectly. In each state, we came as close as the data would permit to the ideal measure; as a consequence, layoffs are defined differently in each of the three states.

In California and Delaware, "layoffs" refer to individuals who received UI benefits. Laid-off individuals who did not apply for benefits, or who applied but did not qualify, are excluded. On the other hand, claimants who received benefits but were not laid off--for example, those who quit work for good cause--are included. In Texas, layoffs include all who applied for benefits, even if they received no payments. Moreover, applicants who were laid off can be separated from other kinds of applicants.

Only in Delaware were we able to obtain information on separate spells of unemployment as opposed to benefit years (which may include several spells). That is, in Delaware each new (compensated) spell of unemployment counts as a separate layoff, while in California and Texas each new benefit year counts as a separate layoff.

Table 13 summarizes the three definitions of layoffs. The layoff rate is calculated as layoffs divided by average employment. The rate based on definition 1 was also available for the state as a whole, using data from [8], and will be presented for comparison with the sample values (a direct comparison was not possible in Delaware). Despite the flaws in the measurement of layoffs, the variation in the layoff rate among the firms in a state should provide useful information.

The tax rate is an important determinant of the cost of UI to a firm. Under experience rating, a firm's tax rate should reflect the number and duration of layoffs that firm has generated. However, the relationship between the benefits paid to the workers a firm has laid off and that firm's tax rate is sometimes quite weak, for a number of reasons. For one thing, in many states (including the three we are

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studying) benefits[1] are charged to all base-period employers, rather than to the last employer. Thus, since the last employer need not be a base-period employer, a firm may be able to avoid paying for some of the unemployment it causes. But it also may have to pay for unemployment it did not cause.

TABLE 13

DEFINITION OF LAYOFFS

Definition	State
1. Number of individuals beginning a benefit year	California
2. Number of individuals beginning a compensated spell of unemployment	Delaware
3. Number of laid-off individuals applying for benefits	Texas[a]

a. Definition 1 is also available for Texas, and is used for comparison with the statewide value.

Features of UI systems that limit experience rating--such as noncharging of benefits and minimum and maximum tax rates--also weaken the relationship between layoffs and the tax rate. Finally, in states (like Delaware) that do not use the reserve ratio or benefit ratio method of experience rating, benefits paid to a firm's former employees do not directly affect that firm's tax rate. In benefit wage ratio states, it is benefit wages that determine the tax rate, and in payroll variation states, it is changes over time in payroll that affect the rate. Even in benefit ratio states, only the last 3 years of benefits are used in the calculation of the tax rate.

UI tax rates are generally expressed as taxes divided by taxable payroll. Taxes as a fraction of total payroll are also of interest. For one thing, when studying different kinds of taxes with different taxable wage bases, it is more meaningful to compare taxes as a fraction of total payroll than to compare statutory tax rates. Moreover, the relationship between UI taxable payroll and total payroll is not the same for all firms. In fact, taxable payroll divided by total payroll

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1. Or benefit wages, in the case of a benefit wage ratio state.

tends to vary inversely with firm size (see table 14).[1] This means that the same tax rate may represent a different tax burden (in terms of total payroll) for different firms.

TABLE 14

TAXABLE PAYROLL/TOTAL PAYROLL BY FIRM SIZE

Firm size	California	Delaware	Texas
1-4	.384	.473	.428
5-9	.448	.463	.451
10-19	.448	.497	.458
20-49	.434	.504	.471
50-99	.427	.476	.475
100-249	.435	.408	.459
250-499	.414	.347	.464
500-999	.432	.408	.406
1,000-4,999	.405	.278	.416
5,000+	.399	.200	.344
Total	.418	.303	.427

Layoff rates reflect the benefit side of the UI system, and tax rates reflect the tax side, but neither in itself tells the whole story. As a summary measure of a firm's experience under the UI system, we propose the net UI subsidy (SUB), calculated as the sum over time of benefits minus taxes:

$$SUB_i = \sum_{t=1}^{T} (BEN_{it} - TAX_{it}) \ .$$

The subsidy should be computed over as long a time period as possible so that persistent patterns of subsidization can be discerned. If $SUB_i > 0$, we say that firm i is being subsidized by the UI system because it is not "paying its own way."

Assuming away for the moment such complexities as noncharged benefits and interest earned by the fund, the sum of SUB_i over all the firms in a state should equal the negative of the <u>change</u> in the state's UI fund balance over the period 1 to T:

$$\sum_{i} SUB_i = \sum_{t=1}^{T} (BEN_t - TAX_t) = - (BAL_T - BAL_1) \ .$$

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1. Throughout this study firm size is measured by employment rather than payroll or some other variable. Therefore the heading "Firm size" in the tables should be understood as number of employees.

Since the fund balance is generally not constant over time, SUB_i will not necessarily sum to zero across firms. The expectation of a nonzero sum is even stronger in our case, since only a sample of industries is being studied. Thus, in our interpretation of the subsidy results we will not be asking so much who is subsidizing whom as who is contributing relatively more to, or benefiting relatively more from, the UI system.

Two measures of the UI subsidy will be discussed, based on two alternative definitions of benefits. BEN1, which is used to compute SUB1, is based on benefits being attributed to a claimant's last employer. As noted above, California and Texas charge benefits to base-period employers rather than the last employer, but it was felt that the last-employer definition generates a truer picture of a firm's demands on the UI system.[1] BEN2, which is used to compute SUB2, is based on the system used by California and Texas, in which benefits are distributed among a claimant's base-period employers in proportion to the wages earned from each employer during the base period.

While there are several UI programs in existence, we were primarily interested in the two largest, the "regular" UI program and the extended benefit (EB) program created in 1970. Regular UI is paid for by the state, while the cost of extended benefits is split evenly between the state and the federal government. Our concern was with the cost to the state rather than the total cost of benefits. From the state's point of view, half of extended benefits is free. Therefore the state will not charge that half to employers nor will it expect taxes to cover that amount (federal UI taxes are supposed to pay for the federal half of EB). Accordingly, both BEN1 and BEN2 equal regular benefits plus one-half of extended benefits.[2]

While BEN1 need not equal BEN2 for an individual employer, when they are added up across enough firms they should equal each other (again assuming away noncharged benefits). Thus, in theory SUB1 should roughly equal SUB2 for the sample as a whole. However, because of the nature of the data, BEN1 and BEN2 could not be calculated on the same basis in any of the three states.[3] The expectation of having SUB1 equal SUB2 is therefore lessened.

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1. The base-period method of charging benefits seems hard to justify on the basis of fairness. According to [6], this method "reflects the idea that those who paid the wages that made the benefits possible should be liable for those benefits" (p. 12).
2. Benefits paid under programs other than regular UI or EB were sometimes included with extended benefits in the calculation of BEN1 and BEN2.
3. One difference concerned the period to which the benefits referred. Moreover, in California BEN1 was much lower than BEN2, leading us to suspect that some layoffs had been missed in the calculation of BEN1.

For an individual firm, BEN1 > BEN2 implies the firm is laying off recently hired individuals; it is the last employer but not a base-period employer, or not the only base-period employer. BEN1 < BEN2, on the other hand, implies the firm is paying for unemployment it did not create.

Both SUB1 and SUB2 are calculated by subtracting the total taxes paid by a firm from benefits. That is, "special" taxes, such as the supplemental tax in Delaware and the balancing account tax in California, are included along with "basic" taxes. The idea is that total taxes represent a firm's total contribution to the UI system.

SUB1 and SUB2 will give an idea of the dollar amounts that are being transferred among firms as a result of their participation in the UI system. The rate of subsidy is also of interest. Munts and Asher [5] use subsidy per employee, per dollar of taxable payroll, and per dollar of total payroll as alternative measures of the rate of subsidy. We will concentrate on the first of these measures, which we define as SUB2 divided by average employment during the period studied.

For each state, the subsidy variables are computed over as long a time period as the data allow. As a result the time periods covered are not exactly the same in the three states. Studying small firms over time raises some interesting problems. While a firm is unlikely to change its industry over time, it may move from one size class to another if it grows or shrinks. How should this movement be accounted for? In the work described here, average employment over the entire period is used as the criterion for breaking down the subsidy by size class. That is, firms that changed size categories over time are classified in their "average" category for the period as a whole rather than in the category that applied in each year. The main reason for this is computational convenience; it was easier to add up the subsidy over time for each firm than to add it up across a different group of firms each year.

One result of this method of classifying firms is that zero-employment firms tend to disappear. Many more firms will have zero employment in a given year than over a 4- or 5-year period. Zero-employment firms fall primarily into two categories: firms with missing employment data and firms that have gone out of business (or merged with other firms). The former group is excluded from the analysis because employment is a crucial variable. The latter group is of interest because firms that go out of business generally impose a burden on the UI system: they lay off workers who collect UI benefits, but they are no longer around to pay for those benefits. That is, while employment, payroll, and taxes are zero for these firms, benefits may be positive, leading to a positive value for the subsidy.

One question that would have been interesting to investigate had resources allowed, is the effect of the business cycle on the pattern of

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subsidy. Since UI benefits increase in a recession, while UI taxes only
increase with a lag, the subsidy should be higher during a recession
than during a boom. If firms of different size exhibit a different
degree of sensitivity to the business cycle, the pattern of subsidy by
firm size may vary over the cycle.

The periods covered by the data do not begin and end at the same
point in the business cycle. As table 15 shows, the data begin (1978 or
1979) near the end of an expansionary period, include a short contrac-
tion and expansion, and end (1981 or 1982) during a contractionary
period. However, it seemed better to use all the data than to analyze
only trough-to-trough or peak-to-peak data.

TABLE 15

RECENT BUSINESS CYCLES[a]

Trough	Peak
November 1970	November 1973
March 1975	January 1980
July 1980	July 1981
November 1982	

a. Source: U.S. Bureau of Economic Analysis,
Business Conditions Digest, July 1985.

The following sections present the results for each state. Each
section begins with a summary of the results, followed by a more
detailed discussion. The discussion focuses primarily on the variation
of tax rates, layoff rates, and the subsidy by size class for the sample
as a whole. Since a pattern observed for the sample as a whole may
differ substantially from the patterns in individual industries,
breakdowns of the variables by industry and by size class within each
industry are also presented.

CALIFORNIA

Summary of Results

- The tax rate (taxes as a fraction of taxable or total
  payroll) does not vary much by firm size for firms with 1
  to 999 employees. It is lowest for firms in the two
  largest size categories.

- The layoff rate is much higher for firms with 1 to 99 employees than it is for all other firms.

- The UI subsidy (SUB1, SUB2, or SUB2 per employee) declines as firm size rises from 1 to 249 employees, and is lowest for the very largest firms (5,000 or more). Firms in the intervening categories have relatively high values of the subsidy.

Discussion

California is the largest of the three states studied, with over 230,000 firms and over 4 million workers in the sample industries. To lower the cost of data processing, a 20 percent sample of small firms in the 43 industries was used; all large firms were included.[1] The population was reconstituted by giving small firms a weight of 5 in the tabulations.

Employment and total payroll were only available for 1980-82, but most of the other variables of interest were available for 1979-82. Tax rates, taxable payroll, basic taxes (the portion of taxes computed using the basic assessment rate), and charged benefits were taken from the reserve file, which contains the information used to compute tax rates.[2] Because of the way this computation is done, basic taxes and charged benefits refer to the period July 1 - June 30 (the year before the computation date) rather than to a calendar year. No attempt was made to put these variables on a calendar-year basis since the information needed to prorate benefits was not readily available.

To calculate the subsidy, balancing account taxes (the portion of taxes computed using the balance account tax rate) had to be added to basic taxes. Balancing account taxes were computed on a calendar-year basis because not enough information was available to calculate them on a computation-year basis. SUB2 was then calculated as:

$$SUB2 = \sum_{t=79}^{82} (BEN2_t - BASTAX_t - BALTAX_t) ,$$

where $BASTAX_t$ (basic taxes) refers to calendar year t, and $BEN2_t$ (charged benefits) and $BALTAX_t$ (balancing account taxes) refer to the period July 1, $t - 1$, to June 30, t.[3]

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1. See appendix B for a detailed description of the sampling procedure.
2. That is, BEN2 represents charged benefits as determined by the state. Any exceptions to a strict application of the charging rules, such as noncharged benefits, are included in BEN2; the magnitude of these exceptions is unknown.
3. Another difference between basic and balancing account taxes is that the former represent taxes paid, while the latter represent taxes due.

BEN1, benefits calculated on a last-employer basis, and layoffs
were determined by processing the UI claim files. These files identify
the last employer before the first spell of unemployment, but they do
not identify the last employer for subsequent spells (if any) during the
same benefit year. In addition, the claim record contains total
benefits paid during the benefit year, but these benefits are not broken
down by spell.

Individual spells of unemployment could be identified by processing
the wage file (which contains earnings by employer) in conjunction with
the claim file, but this would be very costly for so large a state as
California. Thus, it was decided to define layoffs as the number of
benefit year starts—that is, the number of UI claimants beginning new
benefit years—and to attribute all benefits earned during a claimant's
benefit year to the employer identified on the claim record. SUB1 was
then calculated as:

$$SUB1 = \sum_{t=79}^{82} (BEN1_t - BASTAX_t - BALTAX_t) ,$$

where $BEN1_t$ refers to the benefit years that began in year t.

The layoff rate for California is understated because only the
first spell of unemployment in each benefit year is counted. BEN1 is
incorrect for claimants who were laid off by more than one employer
during a benefit year. Despite these problems, these variables should
provide useful information.

Table 16 contains the tax rate and layoff rate for California
broken down by size class. Table 17 contains these variables broken
down by industry.[1] For comparison, table 16 also presents average tax
rates for the state as a whole.

Average tax rates for our sample of firms are close to the state-
wide averages. However, the layoff rate for the sample (4.5 percent) is
much lower than the corresponding rate for the state (10.6 percent).
This could indicate that the sample has an unusually low layoff rate.
Since we have no particular reason to expect this result, we suspect
that some claimants belonging to the sample industries, and their
associated UI benefits, were not picked up in the data processing.[2] It
is hoped that any omissions of this type will not bias the results by
size class.

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1. Appendix A contains breakdowns by size class within each industry.
2. One reason for this suspicion is that, if the last employer's account
number was missing from the claim record, there was no easy way to guess
who the last employer was. Unfortunately, we do now know how often the
account number was actually missing.

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TABLE 16

STATISTICS BY FIRM SIZE CLASS: CALIFORNIA, 1981

| Firm Size | Number of firms | Total employment | Taxes as a percent of | | Layoff rate (%) | Benefits per claimant ($) |
			Taxable payroll	Total payroll		
0	36,335	0	--	--	--	1,032
1-4	110,285	229,331	2.61	1.00	7.6	1,461
5-9	37,620	244,464	2.59	1.16	7.2	1,435
10-19	22,000	296,263	2.64	1.18	7.5	1,334
20-49	14,837	449,269	2.63	1.14	7.9	1,382
50-99	5,543	381,214	2.64	1.13	7.4	1,347
100-249	2,414	360,686	2.64	1.15	2.4	1,287
250-499	671	230,823	2.65	1.10	2.8	1,261
500-999	284	198,920	2.72	1.17	2.2	1,250
1,000-4,999	232	452,008	2.35	.95	2.1	916
5,000 +	68	1,214,642	1.96	.78	2.2	756
Unknown	3,493	-	3.43	--	--	1,367
Total[a]	230,289	4,057,619	2.44	1.02	4.5	1,262
State total[b]			2.51	.99		

a. Excluding Unknown.
b. Source: Unemployment Insurance Financial Data [8].

TABLE 17

STATISTICS BY INDUSTRY: CALIFORNIA, 1981

Industry	No. of firms with positive employment	Taxes as a percent of Taxable payroll	Taxes as a percent of Total payroll	Layoff rate (%)
152	15,063	3.26	1.40	18.1
154	1,691	3.49	1.16	13.5
161	1,406	3.66	1.23	21.0
171	5,509	3.11	1.08	12.4
201	284	3.14	1.15	7.2
203	322	3.71	1.77	2.9
22	343	2.64	1.28	10.2
23	4,196	2.78	1.68	7.5
26	444	2.51	.84	3.9
271	573	2.05	.75	1.7
281	103	2.13	.61	3.3
282	110	2.42	.89	3.3
286	79	1.98	.52	3.6
291	50	1.51	.33	.2
331	154	3.36	1.10	8.6
344	1.665	2.65	.87	7.1
356	528	2.49	.85	4.0
367	1,685	2.37	.86	7.8
371	695	3.19	1.14	2.8
421	8,027	2.79	.98	8.7
48	786	1.84	.52	.7
501	3,045	2.38	.92	5.0
508	9,133	2.28	.78	5.1
512	8401	2.39	.76	2.2
514	4,097	2.68	.96	4.9
531	109	1.95	1.27	5.4
541	7,629	2.16	.87	1.6
551	2,131	2.48	.91	7.1
554	8,982	2.59	1.68	6.9
581	33,906	2.49	1.84	3.6
602	374	1.84	.79	1.8
631	349	1.98	.75	1.4
651	12,318	2.66	1.31	2.6
701	4,283	2.77	1.81	4.1
721	4,009	2.33	1.33	5.3
723	7,529	2.30	1.60	3.6
734	3,840	2.62	1.56	5.6
736	1,976	2.67	1.74	3.7
794	317	3.34	1.25	3.4
801	24,312	2.25	.46	1.4
805	1,063	2.10	1.48	2.6
811	14,061	2.23	.67	2.6
891	5,937	2.65	.80	4.9
Total	193,954	2.44	1.02	4.5

The firm size category labeled "Unknown" consists of firms with missing employment data, that is, with zero employment but positive payroll.[1] A relatively large number of firms fell in this category. These firms were excluded from the analysis because it is impossible to determine exactly which size class they belong to.[2] It is interesting to note how high the tax rate and benefits per claimant are for this group; it does not seem to consist of typical firms.

Taxes as a fraction of taxable payroll do not vary much by size class except for the two largest categories (see figure 1). The tax rate is practically constant over the range 10 to 499 employees, is somewhat lower for 1 to 9 employees, and is lower still for firms with 1,000 or more employees. Interestingly, firms with 500-999 employees have the highest rate. The pattern is not markedly different for taxes as a fraction of total payroll. The differences in ranking reflect differences in the ratio of taxable to total payroll among size classes.

The layoff rate exhibits an interesting pattern by size class (see figure 2). Firms with 1 to 99 employees have relatively high rates, ranging from 7.2 to 7.9 percent. Firms with 100 or more employees have much lower rates ranging from 2.1 to 2.8 percent. Since a firm's tax should reflect its layoff rate,[3] one is tempted to conclude that firms with 100 to 999 employees do not deserve their high tax rates. However, the layoff rate is only one way of measuring a firm's demands on the UI system. The duration of unemployment and the weekly benefit amount also determine the total amount of benefits. The last column of table 16 indicates that, even though firms with 100 to 999 employees laid off relatively few workers, those workers collected benefits comparable in amount to the benefits collected by claimants from smaller firms, and much higher than the benefits collected by claimants from the largest firms. This occurs because the average number of weeks during which UI benefits were paid (rather than the weekly benefit amount) is relatively high for firms with 100-999 employees.

Table 18 presents various measures of the UI subsidy broken down by size class, and table 19 presents them broken down by industry.[4] For the state as a whole, SUB1 and SUB2 are large and negative, indicating that benefits were much lower than taxes. SUB1 is lower than SUB2, reflecting the fact that BEN1 (benefits on a last-employer basis) is probably understated.

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1. Employment and total payroll, which came from the same source (U.S. ES-202 forms), were often both missing for these firms.
2. As a further complication, we do not know whether these are small firms (who should be given a weight of 5) or not.
3. Technically, the current tax rate should reflect the firm's average layoff rate over a number of years. The pattern of layoff rates for 1981 is found in the data for 1979-82 as well.
4. Appendix A contains breakdowns by size class within each industry.
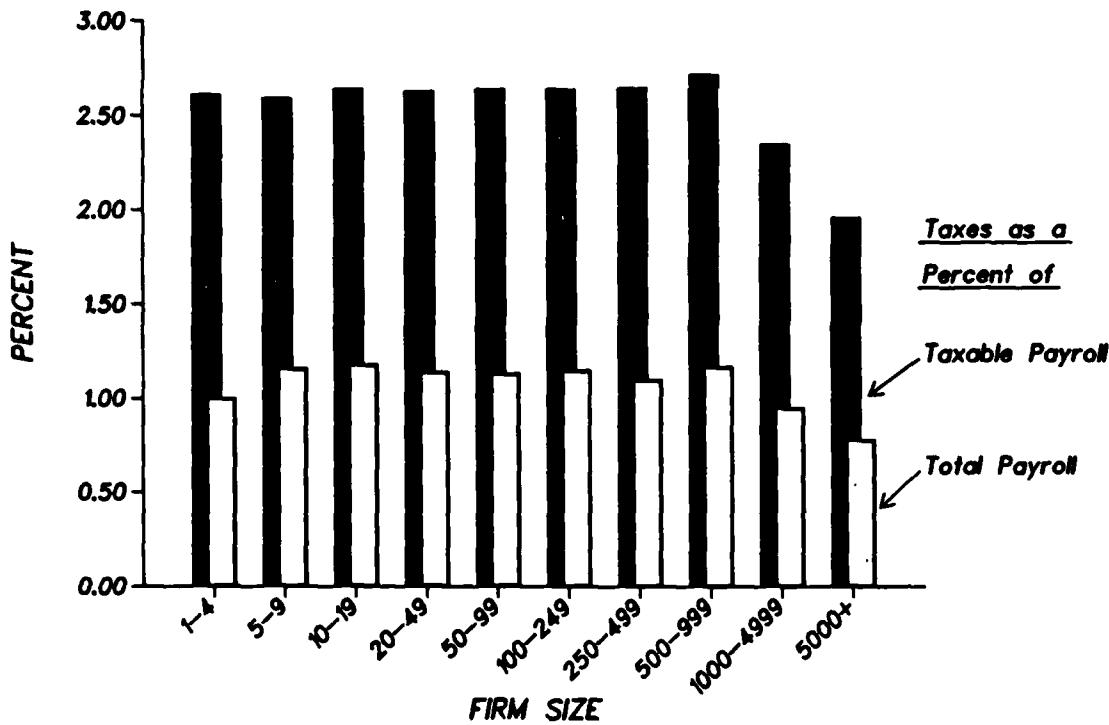
FIG. 1: TAX RATES BY FIRM SIZE -- CALIFORNIA, 1981
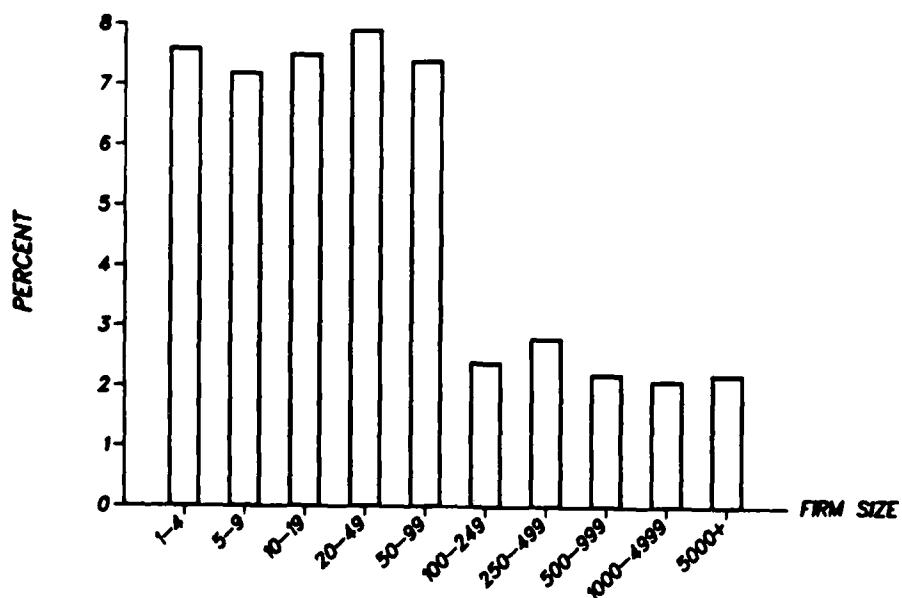
FIG. 2: LAYOFF RATE BY FIRM SIZE -- CALIFORNIA, 1981

TABLE 18

UI SUBSIDY BY SIZE CLASS: CALIFORNIA, 1979-82

Industry	Number of Firms	SUB1 ($000)	SUB2 ($000)	SUB3 ($000)	SUB2 per employee ($)
0	0	--	--	--	--
1-4	150,260	-65,432	-4,201	28,813	-13.76
5-9	44,905	-73,211	-28,694	6,498	-98.47
10-19	25,210	-88,239	-33,310	11,603	-98.45
20-49	16,835	-132,920	-58,925	13,718	-115.80
50-99	5,966	-135,407	-60,264	2,724	-148.42
100-249	2,687	-206,281	-71,770	-8,197	-180.48
250-499	719	-133,473	-39,395	1,364	-159.03
500-999	305	-125,170	-6,491	28,775	-30.77
1,000-4,999	270	-253,855	-26,883	52,846	-50.65
5,000+	52	-411,806	-239,504	-79,752	-279.58
Total	247,209	-1,625,794	-569,437	58,392	-139.10

TABLE 19

UI SUBSIDY BY INDUSTRY: CALIFORNIA, 1979-82

Industry	Number of firms	SUB1 ($000)	SUB2 ($000)	SUB3 ($000)	SUB2 per employee ($)
152	21,256	2,634	73,826	88,620	726
154	2,096	-10,606	27,395	36,160	757
161	1,814	-6,122	27,709	32,883	1,073
171	6,668	-18,929	1,045	12,795	18
201	313	-9,078	-665	3,093	-33
203	393	-60,897	180,608	195,350	2,792
22	439	-5,779	48	2,743	3
23	5,622	-51,905	75	18,506	1
26	514	-21,868	-5,403	2,480	-139
271	653	-19,982	-14,132	-6,186	-318
281	137	-4,346	-3,639	-1,408	-324
282	115	-1,818	-1,267	-475	-337
286	99	-1,975	-1,561	-595	-329
291	61	-18,195	-14,181	-5,844	-341
331	160	-9,412	7,784	11,932	476
344	1,929	-27,488	-9,756	1,730	-174
356	598	-12,957	-6,825	-2,202	-288
367	2,102	-65,842	-49,433	-26,159	-369
371 .	884	-36,297	59,522	68,884	1,282
421	10,513	-42,797	4,906	27,071	39
48	1,010	-92,272	-67,659	-32,047	-354
501	3,711	-20,699	-13,206	-4,981	-288
508	11,318	-58,558	-47,933	-22,928	-314
512	992	-9,431	-6,170	-2,847	-323
514	5,076	-36,756	-4,440	9,712	-53
531	116	-117,708	-111,996	-58,313	-354
541	9,818	-109,532	-73,413	-35,255	-335
551	2,559	-35,611	-18,027	96	-202
554	10,888	-21,488	-13,665	-4,821	-183
581	46,251	-226,821	-153,454	-79,287	-206
602	428	-83,772	-77,729	-43,144	-429
631	347	-19,645	-13,209	-5,478	-351
651	15,190	-21,983	-11,697	-4,154	-143
701	5,286	-58,474	-31,272	-13,675	-233
721	5,172	-15,865	-10,204	-3,690	-246
723	9,721	-14,611	-11,848	-6,987	-277
734	5,306	-21,590	-9,785	-1,904	-152
736	2,693	-60,316	-30,576	-12,940	-250
794	444	-6,056	-891	539	-74
801	28,294	-47,370	-41,033	-24,356	-280
805	1,167	-39,132	-30,882	-17,597	-274
811	17,730	-37,522	-31,437	-18,485	-402
891	7,326	-46,919	-34,966	-18,443	-386
Total	247,209	-1,625,794	-569,437	58,392	-139

Recall that in California, basic taxes are credited to a firm's own account but balancing account taxes are not. Thus one could argue that, from the state's point of view, it is basic taxes that are supposed to pay for a firm's charged benefits. SUB3, defined as:

$$SUB3 = \sum_{t=79}^{82} (BEN_t - BASTAX_t)$$

shows that, for the sample as a whole, basic taxes did not quite cover charged benefits during the period of study. The difference between SUB2 and SUB3 shows that all firms contributed heavily to the balancing account during this period.

Both SUB1 and SUB2 tend to decine as firm size rises (see figure 3). There are, however, important exceptions. SUB1 for firms in the 250-499 and 500-999 categories is roughly equal to that for much smaller firms (those with 20-49 and 50-99 employees). SUB2 for firms in the 500-999 and 1,000-4,999 categories ranks second only to the value for the very smallest firms, and SUB2 for firms in the 250-499 group is also relatively high.
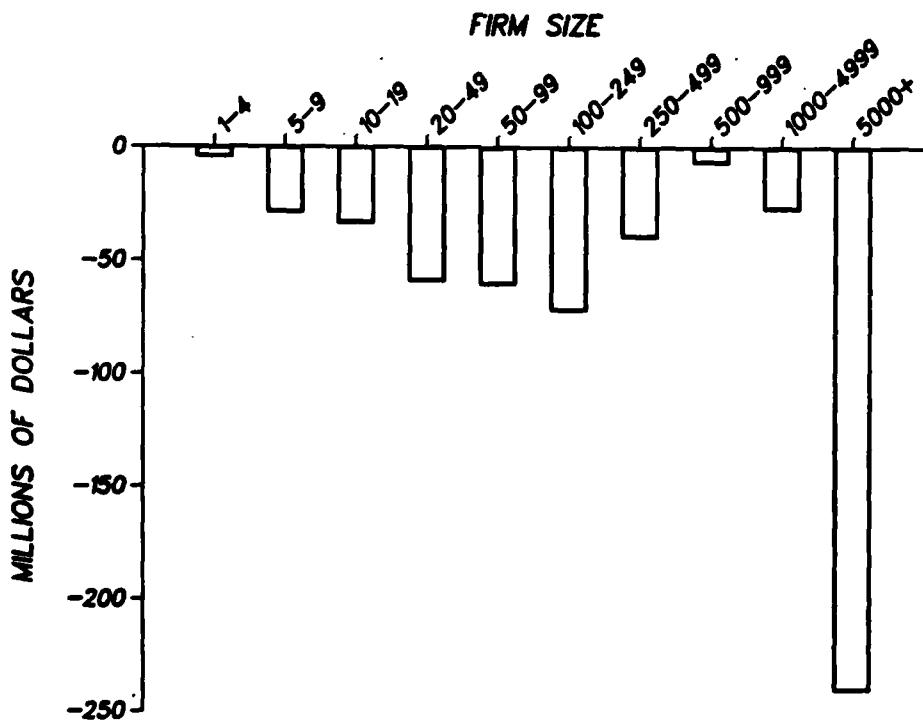
FIG. 3: SUB2 BY FIRM SIZE -- CALIFORNIA, 1979 TO 1982

Looking at rankings of SUB1 and SUB2 can be somewhat misleading because firm size is not controlled for. By defining size classes differently, we could arrive at a different pattern. SUB2 per employee, which does control for size, exhibits roughly the same pattern as SUB2. The 500-999 and 1,000-4,999 categories have subsidy rates second only to the 1-4 category; the 250-499 category also has a relatively high rate, although it does not rank as high as when SUB2 is used.

Overall, while all size classes in a sense subsidized the UI system during the period studied, it appears that the very smallest firms contributed the least to the system and the very largest firms contributed the most. However, some large firms, especially those with 500 to 999 employees, were relatively more subsidized than small firms were. Within the range 1 to 249 employees, the three measures of subsidy all decline as firm size increases.

DELAWARE

Summary of Results

- The tax rate tends to rise with firm size up to a point, and then decline. For taxes divided by taxable payroll, the 100-249 size class has the highest rate; the 1-4 and 1,000-4,999 categories are exceptions to the general pattern.

- The total layoff rate follows the same pattern as the tax rate in terms of taxable payroll, except that firms with 1,000 to 4,999 employees have the highest rate.

- The UI subsidy (SUB1, SUB2, or SUB2 per employee) varies in much the same way as tax rates and layoff rates do. With the exception of firms with 1,000 to 4,999 employees, SUB2 and SUB2 per employee rise as firm size rises from 1 to 249 employees, and decline as firm size rises after that.

Discussion

Although Delaware is a tiny state, we feel it is worth studying because it is one of the states whose UI system has experienced the most difficulty remaining solvent. Delaware, along with other northeastern and midwestern states with large manufacturing sectors, had a hard time coping with the recessions of the past decade. Studying Delaware's UI system may therefore yield insights that are relevant to problems in Illinois, Michigan, Ohio, and Pennsylvania.

Because Delaware is so small, it was possible to do more intensive data processing than for the other two states. All firms in the sample industries were studied. The benefit and layoff variables were created

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by processing the claim and wage files.[1] Since the claim file included the date on which each benefit payment was made, it was possible to study separate spells of unemployment. Thus, in this state layoffs represent the number of compensated spells of unemployment beginning in each year. In addition, claimants were followed after each spell to see whether they returned to their old employers (in which case they were called temporary layoffs), took new jobs, or left the state's labor force.

For a claimant, BEN1 equals the benefits paid during a spell of unemployment, attributed to the claimant's last employer. BEN2, on the other hand, equals the total benefits paid during his entire benefit year, distributed among his base-period employers in proportion to the wages earned from each during the base period. For a firm, BEN1 and BEN2 equal the sum of the individual values over all claimants for whom that firm was the last employer (BEN1) or a base-period employer (BEN2). All benefits were charged to some employer; that is, there was no provision for noncharging.

Taxes equal taxes due (that is, the tax rate times taxable payroll) rather than taxes paid. The two definitions of subsidy are therefore:

$$SUB1 = \sum_{t=78}^{81} (BEN1_t - TAX_t) \text{ and}$$

$$SUB2 = \sum_{t=78}^{81} (BEN2_t - TAX_t) ,$$

where TAX_t refers to calendar year t, $BEN1_t$ refers to spells that began in year t, and $BEN2_t$ refers to benefit years that began in year t.

Tables 20 and 21 contain tax rates and layoff rates for Delaware broken down by size class and by industry. Taxes as a fraction of taxable payroll and total payroll are somewhat lower for the sample firms than for the state as a whole. For the state, the layoff rate based on the first definition of layoffs in table 13 was 12.5 percent in 1980. This rate is not strictly comparable to the sample layoff rate (19.7 percent) because the former is based on the number of benefit years while the latter is based on the number of spells of unemployment.

Taxes as a fraction of taxable payroll tend to rise with firm size for firms with fewer than 250 employees, and decline as firm size rises

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1. Since Delaware is a benefit wage ratio state, it does not need to keep track of UI benefits on either a last-employer or a base-period-employer basis. Thus, it was necessary to create both BEN1 and BEN2. See appendix B for details.

TABLE 20

STATISTICS BY FIRM SIZE CLASS: DELAWARE, 1980

Firm Size	Number of firms	Total employment	Taxes as a percent of		Layoff rate (percent)		Benefits per spell ($)
			Taxable payroll	Total payroll	Temporary	Permanent	
0	2,361	0	--	--	--	--	1103
1-4	2,593	5,360	3.03	1.43	5.0	9.8	1499
5-9	930	6,102	2.80	1.29	3.7	7.0	1608
0-19	598	7,988	2.81	1.40	3.8	7.9	1590
20-49	446	14,016	2.91	1.46	6.8	8.5	1326
50-99	152	10,570	3.11	1.48	11.0	8.5	1073
100-249	90	13,342	3.58	1.46	14.7	11.3	1091
250-499	28	9,033	2.82	0.98	12.3	3.2	811
500-999	25	18,103	2.26	0.92	3.2	1.6	882
1,000-4,999	15	34,372	3.18	0.88	45.5	1.6	802
5,000 +	2	36,271	1.70	0.34	2.0	0.5	1274
Total	7,240	155,157	2.66	0.80	15.5	4.3	965
State Total[a]			2.92	1.12			

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a. Source: Unemployment Insurance Financial Data [8].

TABLE 21

STATISTICS BY INDUSTRY: DELAWARE, 1980

Industry	Number of firms with positive employment	Taxes as a percent of		Layoff rate (percent)	
		Taxable payroll	Total payroll	Temporary	Permanent
152	399	3.54	2.07	12.1	19.4
154	85	4.93	2.29	19.6	44.3
161	58	5.97	.97	16.3	7.6
171	522	4.04	1.93	6.3	33.8
201	13	2.75	1.91	6.2	3.4
203	18	4.55	3.19	66.5	23.9
22	11	5.18	2.73	62.6	12.1
23	29	5.78	4.10	95.7	22.9
26	17	3.68	1.45	45.3	4.9
271	15	2.06	.83	1.9	2.5
281	9	1.73	.46	.5	.2
282	18	1.72	.36	1.7	.5
286	9	1.70	.41	.1	.8
291	2	1.90	.40	1.0	1.1
331	2	4.30	1.12	54.6	3.0
344	25	4.96	2.27	25.4	8.5
356	4	1.96	.81	.5	9.2
367	1	2.30	.74	15.2	1.4
371	4	5.80	1.84	168.7	4.7
421	208	3.26	1.22	22.4	17.6
48	33	1.77	.54	.1	.6
501	93	2.39	1.08	16.8	3.3
508	268	2.29	.14	1.3	8.5
152	63	2.91	1.14	28.5	3.1
514	98	2.48	.97	1.7	4.2
531	24	2.52	1.74	2.9	2.9
541	235	2.86	1.26	2.0	2.8
551	79	2.24	1.01	2.4	10.9
554	335	2.67	1.89	.7	5.6
581	752	2.86	2.26	4.0	4.2
602	19	1.73	.76	.3	1.3
631	54	1.91	.85	.3	2.4
651	262	3.00	1.73	.9	8.6
701	89	2.56	1.79	4.8	4.5
721	91	2.38	1.77	4.4	5.2
723	214	2.44	1.81	.5	1.6
734	125	2.74	1.99	2.1	4.3
794	26	5.47	4.55	8.9	13.5
801	482	2.07	.44	.5	2.1
805	30	1.78	1.15	.2	1.3
811	194	1.97	.69	.1	1.5
891	108	2.73	.74	2.0	6.2
Total	4,879	2.66	0.80	15.5	4.3

after that (see figure 4). There are two important exceptions: firms
with 1 to 4 employees and with 1,000 to 4,999 employees have high rates
compared to their neighbors.[1] The same broad pattern applies to taxes
as a fraction of total payroll; the 1,000-4,999 category now conforms to
the pattern. Taxable payroll is a relatively small fraction of total
payroll for the two largest size groups, so their tax rates decline the
most when moving from column 4 to column 5.
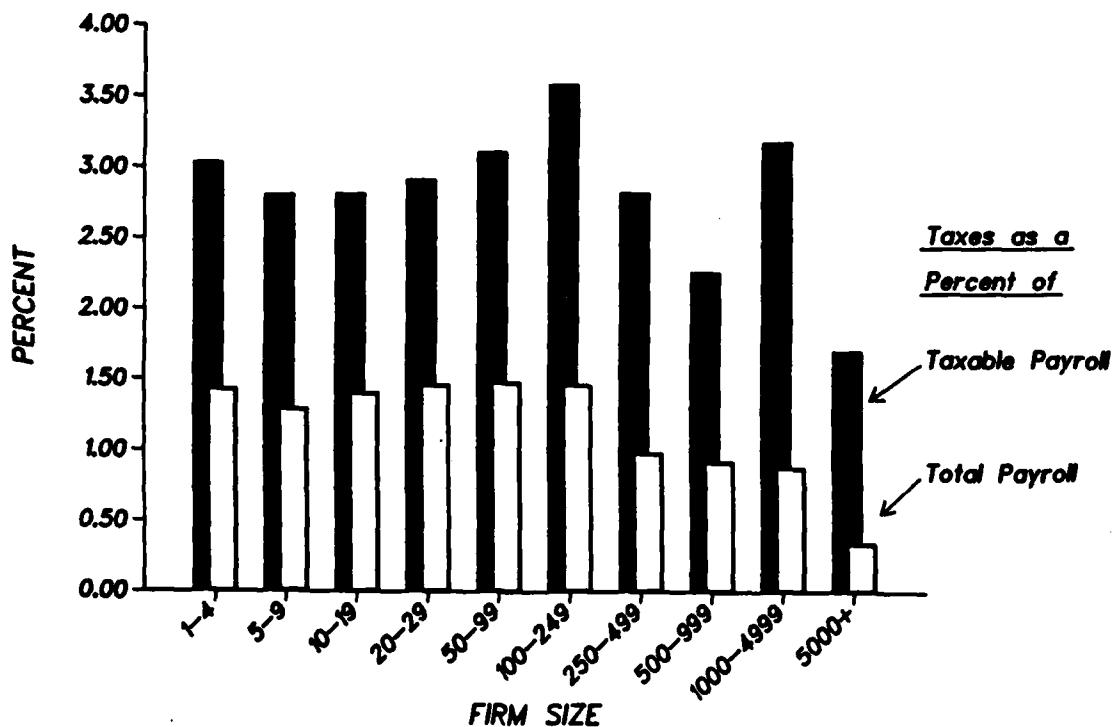
FIG. 4: TAX RATES BY FIRM SIZE -- DELAWARE, 1980

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1. As appendix A shows, the tax rate and layoff rate results for the
1,000-4,999 category are dominated by three manufacturing industries:
SIC 26 (Paper), 331 (Steel), and 371 (Motor Vehicles).

In tables 19 and 20 it is interesting to note the variation in
temporary and permanent layoff rates across groups. Some industries,
for example, Motor Vehicles (SIC 371), Apparel (23), Preserved Fruits
and Vegetables (203), Textiles (22), Steel (331), and Paper (26), seem
to use temporary layoffs extensively. A high temporary layoff rate is
not, however, always associated with a high permanent layoff rate. For
example, firms with 1,000-4,999 employees have quite a high temporary
layoff rate but a low permanent layoff rate.

Temporary layoffs can create a large burden for the UI system
because the expectation of being recalled will usually prevent a
claimant from looking for other work. On the other hand, some temporary
layoffs--such as those occurring in the auto industry during the model-
year changeover--are relatively short. (Note that benefits per spell
are lowest for the 1,000-4,999 category.)

The temporary layoff rate exhibits the same pattern as the tax
rate: it first rises with firm size, then declines. The exceptions
again are the smallest firms and those with 1,000 to 4,999 employees.
The total layoff rate (temporary plus permanent) also follows this
pattern, both in 1980 and over the period 1978-81 (see figure 5). It
appears that tax rates are more a reflection of layoff rates than they
are of benefits per spell.
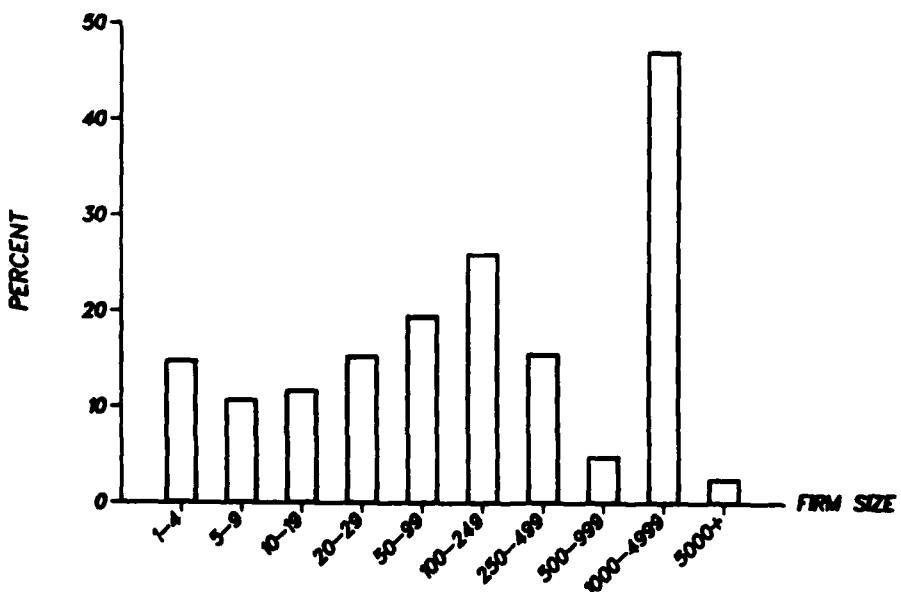
FIG. 5: TOTAL LAYOFF RATE BY FIRM SIZE -- DELAWARE, 1980

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Tables 22 and 23 present various measures of the UI subsidy by size class and by industry. For the whole sample, SUB1 and SUB2 are both negative. In addition, SUB1 < SUB2 for each size class, implying that benefits on a last-employer (spell) basis are lower than benefits on a base-period employer (benefit year) basis.[1] Note that while California contained no firms with zero employment over the entire period studied, Delaware does have some firms in this category.[2] As expected, their subsidy is positive.

The subsidy measures vary by size class in much the same way as tax rates and layoff rates do (see figure 6). With the exception of firms with 1,000 to 4,999 employees, SUB2 and SUB2 per employee rise as firm size rises from 1 to 249 employees, and decline for firm sizes of 250 or more. The pattern is similar for SUB1, although it is weaker in the range 1 to 49. By all three subsidy measures, the 1,000-4,999 category is the most heavily subsidized (followed by 100-249 and 50-99), and the very largest firms are the least subsidized (followed by firms with 500 to 999 employees). In sum, even though firms with high layoff rates seem to have high tax rates as well, these rates apparently are not always high enough to generate taxes that equal UI benefits.

While tax rates, layoff rates, and the UI subsidy for Delaware exhibit similar variation by firm size, it is not obvious what factors might have led to a peaked distribution of these variables rather than one with a uniform upward or downward slope.

TEXAS

Summary of Results

- Tax rates increase as firm size rises from 1 to 499 employees, and then decline as firm size rises after that. Firms in the two largest categories have the lowest rates, followed by firms with 1 to 19 employees.

- The layoff rate rises over the range 1 to 999 employees, and then declines. Firms with fewer than 50 employees have the lowest rates.

- The UI subsidy (SUB2) rises with firm size over the entire range of employment. SUB2 per employee, on the other hand, rises as firm size rises from 1 to 999 employees, and then declines.

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1. For the sample as a whole, BEN1/BEN2 = .92.
2. Firms with zero employment over the entire period were only studied if some other variable, such as benefits, was positive. Firms with zero values for all variables make no contribution to the UI subsidy.

TABLE 22

UI SUBSIDY BY SIZE CLASS: DELAWARE, 1978-81

Firm size	Number of firms	SUB1 ($000)	SUB2 ($000)	SUB2 per employee ($)
0	68	31	149	--
1-4	4,129	-557	-201	-24.90
5-9	1,306	-567	5	0.63
10-19	796	-202	161	15.23
20-49	562	-550	368	21.18
50-99	194	782	1,243	91.68
100-249	105	1,009	2,222	139.28
250-499	33	-975	-613	-57.47
500-999	30	-7,056	-6,233	-299.78
1,000-4,999	15	7,002	8,349	241.05
5,000+	2	-12,299	-12,044	-339.06
Total	7,240	-13,379	-6,593	-37.52

TABLE 23

UI SUBSIDY BY INDUSTRY: DELAWARE, 1978-81

Industry	Number of firms	SUB1 ($000)	SUB2 ($000)	SUB2 per employee ($)
152	655	518	785	251
154	141	2,054	2,428	1,245
161	73	1,430	1,436	501
171	329	928	1,049	446
201	16	-1,732	-1,334	-337
203	23	562	725	363
22	11	-75	-18	-29
23	41	-248	-343	-190
26	19	-80	110	33
271	20	-291	-214	-199
281	9	-683	-665	-356
282	21	-17,099	-16,688	-346
286	10	-3,201	-3,077	-382
291	2	-416	-383	-399
331	3	-662	-324	-242
344	33	391	586	735
356	4	-40	-16	-80
367	3	80	97	578
371	4	17,254	18,000	2,077
421	343	916	1,189	331
48	41	-1,269	-1,222	-260
501	122	97	-6	-7
508	416	-546	-238	-73
512	91	-39	-107	-98
514	159	-202	-35	-29
531	40	-1,747	-1,354	-163
541	371	-1,751	-1,377	-198
551	99	-96	114	45
554	522	-346	-94	-42
581	1,232	-2,032	-1,363	-72
602	30	-1,411	-1,276	-221
631	64	-394	-350	-284
651	337	-261	-119	-59
701	118	-406	-343	-152
721	141	-29	32	32
723	305	-304	-284	-257
734	189	-261	-123	-35
736	95	-197	-237	-87
794	37	109	95	140
801	625	-640	-616	-296
805	45	-362	-276	-93
811	256	-548	-506	-283
891	145	-350	-248	-175
Total	7,240	-13,379	-6,593	-38
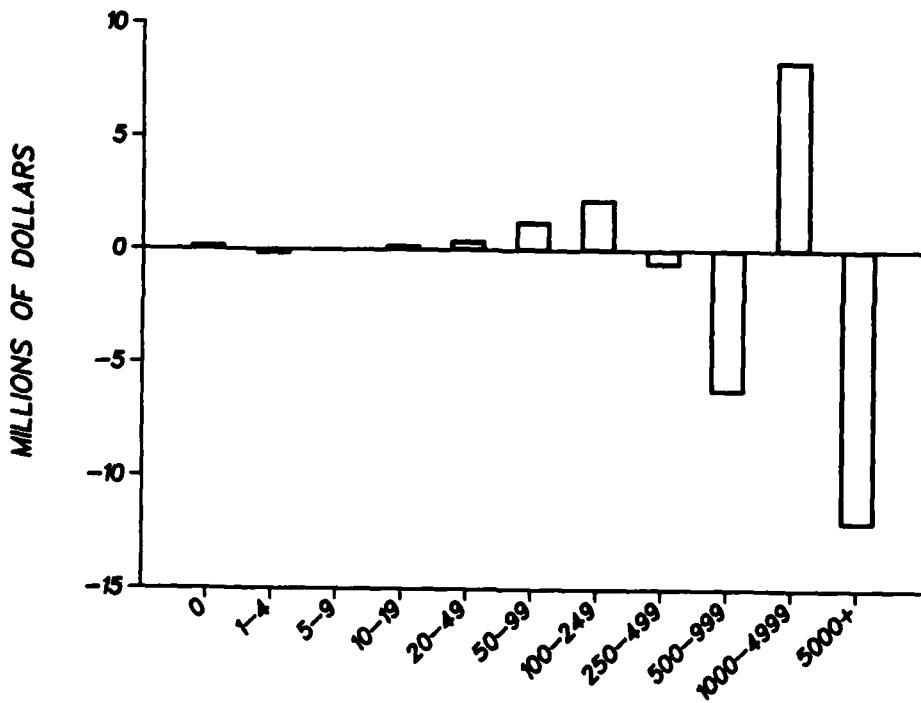
FIG. 6: SUB2 BY FIRM SIZE -- DELAWARE, 1978 TO 1981

Discussion

Like California, Texas is a large state, with about 200,000 firms
and 2.4 million workers in the sample industries. As in California, a
20 percent sample of small firms was chosen, but all large firms in the
43 industries were studied.

The claim data for Texas, unlike those for the other two states,
contain information for every individual who filed for UI benefits,
whether or not any benefits were paid. Moreover, the reason for
separation is included in the data. Layoffs could therefore be
distinguished from other types of claimants ("quit," "discharged," or
"other").

Table 24 shows that in 1981 only about a third of those who applied
for benefits actually received them.[1] While layoffs account for less
than half of those who filed, they represent 75 percent of those who
received benefits. This makes sense because individuals who quit or are

------

1. As in California, "applicants" and "layoffs" refer to the number of
benefit years rather than the number of spells of unemployment.

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TABLE 24

CLAIMANT DATA: TEXAS, 1981

Total number of applicants	126,797
Applicants receiving benefits	40,754
Total number of layoffs	61,140
Layoffs receiving benefits	30,395

discharged are less likely to qualify for benefits than those who are laid off. In California and Delaware, "layoffs" are really applicants who received benefits. Table 24 indicates that in Texas, the ratio of applicants receiving benefits to layoffs was about two-thirds in 1981. However, it is unlikely that this ratio would apply to other states because the rate of denial of benefits varies widely from state to state.

As in California, BEN2 (charged benefits) and taxes were available directly in the data, while BEN1 and layoffs were created by processing the claim data.[1] SUB2 was defined as:

$$SUB2 = \sum_{t=78}^{82} (BEN2_t - TAX_t)$$

where $BEN2_t$ refers to benefits paid during calendar year t and TAX_t equals taxes paid during year t. The Texas claim data were processed only for 1981. Thus, BEN1 (benefits on a last-employer basis) and SUB1 are defined only for that year. SUB1 is not discussed here because it was felt that one year is too short a time to yield meaningful results about patterns of cross-subsidization.

Tables 25 and 26 present tax rates and layoff rates for Texas broken down by size class and by industry. It is interesting to note that average tax rates in Texas are less than a third of the rates in California and Delaware. However, the new claimant rate (benefit-year starts divided by average employment) in Texas is also relatively low: 3.3 percent compared to 10.6 percent in California and 12.5 percent in Delaware (using data for the state as a whole). It appears that Texas is a state with low benefit payouts and correspondingly low taxes. Indeed, in 1981 Texas had the lowest ratio of taxes to total wages and benefits to total wages of any of the 50 states [8, p. 195].

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1. Therefore, BEN2 represents charged benefits as determined by the state rather than by a strict application of the changing provisions. The amount of noncharged benefits is unknown.

TABLE 25

STATISTICS BY SIZE CLASS: TEXAS, 1981

Firm size	Number of firms	Total employment	Taxes as a percent of Taxable payroll	Taxes as a percent of Total payroll	Layoff rate (%)	Benefits per claimant ($)
0	71,050	0	--	--	--	1,228
1-4	70,120	143,902	.51	.22	2.0	1,156
5-9	26,350	168,492	.53	.24	2.0	1,254
10-19	16,930	227,378	.52	.24	2.1	1,265
20-49	9,556	288,860	.56	.26	2.3	1,354
50-99	3,489	240,107	.57	.27	2.6	1,419
100-249	1,848	277,214	.59	.27	2.9	1,372
250-499	512	177,699	.61	.28	3.2	1,287
500-999	235	160,098	.57	.23	3.4	1,429
1,000-4,999	174	336,834	.50	.21	2.9	1,292
5,000+	30	397,554	.44	.15	2.4	1,347
Unknown	50	--	.95	.95	--	730
Total[a]	200,294	2,418,138	.53	.23	2.6	1,330
State total[b]			.58	.24		

a. Excluding Unknown.
b. Source: <u>Unemployment Insurance Financial Data</u> [8].

TABLE 26

STATISTICS BY INDUSTRY: TEXAS, 1981

| Industry | Number of firms with positive employment | Taxes as a percent of | | Layoff rate (%) |
		Taxable payroll	Total payroll	
152	6,803	.67	.32	4.4
154	3,688	1.33	.63	7.6
161	876	.74	.37	5.4
171	5,416	.72	.33	4.2
201	308	.79	.38	5.5
203	51	2.13	1.12	19.2
22	84	1.14	.56	14.7
23	941	1.13	.72	14.0
26	239	.58	.20	3.0
271	615	.31	.14	1.0
281	54	.47	.12	5.8
282	13	.47	.12	1.5
286	57	.15	.03	.3
291	76	.54	.12	1.5
331	48	.57	.15	5.7
344	1,656	.57	.24	3.8
356	314	.42	.16	2.8
367	298	.36	.12	2.9
371	211	1.89	.69	9.8
421	5,634	.52	.22	2.9
48	1,305	.39	.13	.4
501	2,220	.43	.17	1.8
508	9,952	.36	.11	1.6
512	521	.58	.20	1.7
514	2,257	.62	.25	3.6
531	182	.37	.22	1.3
541	7,170	.44	.23	1.4
551	1,836	.43	.17	1.4
554	7,636	.48	.32	2.3
581	17,608	.48	.36	1.5
602	1,763	.21	.09	.3
631	451	.34	.14	.6
651	7,939	.79	.43	2.0
701	2,230	.61	.44	1.9
721	3,271	.41	.27	1.7
723	5,221	.34	.23	.4
734	2,069	.51	.38	1.6
736	1,656	.60	.36	3.8
794	99	.64	.17	.6
801	13,561	.32	.07	.6
805	619	.45	.36	1.4
811	7,905	.24	.09	.6
891	4,391	.47	.14	2.8
Total	129,244	.53	.23	2.6

Tax rates for the sample firms are close to those for the state as a whole. However, the layoff rate based on the first definition of layoffs in table 13 is only 1.7 percent for the sample, compared to 3.3 percent for the state. We do not know whether this means that the sample industries have an unusually low layoff rate, or whether some claimants belonging to the sample firms were missed when the claim data was processed.

As in California, the size class labeled "Unknown" consists of firms with missing employment data. Only a few firms fell into this category. We suspect they are firms that went out of business during the year. Taxable payroll nearly equals total payroll for these firms; this result usually occurs in the first quarter of the year, before employees have earned the taxable limit. Tax rates for the group are high, but average benefits per claimant are low.

Tax rates and layoff rates for Texas follow the same broad pattern of variation by firm size that was found in Delaware: they increase with firm size up to a point, and then decline (see figures 7 and 8). Tax rates increase over the range 1 to 499 employees. The ranking of tax rates is roughly the same whether taxes are related to taxable or total payroll. The one exception is firms with 500 to 999 employees, who have a relatively high tax rate in terms of taxable payroll and a relatively low rate in terms of total payroll. Overall, the largest firms have the lowest tax rates, followed by the very smallest firms (1 to 19 employees).

Layoff rates increase over the range 1 to 999 employees, and then decline for the two largest size categories. Here, however, it is the smallest firms--those with fewer than 50 employees--that have the lowest rates. While tax rates follow the same broad pattern as layoff rates, they do not seem to reflect either layoff rates or benefits per claimant very closely.[1]

Tables 27 and 28 contain the subsidy measures for Texas broken down by size class and by industry. SUB2 for the sample as a whole is negative but small. Except for zero-employment firms,[2] SUB2 increases with firm size (see figure 9). In dollar terms, firms with fewer than 100 employees appear to be subsidizing larger firms. The subsidy rate does not rise monotonically with firm size. Rather, it exhibits the pattern found for the layoff rate, rising as firm size increases from 1 to 999 employees and declining thereafter. Firms with 500 or more employees have the highest subsidy rates.

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1. 1981 layoff rates and benefits per claimant may be atypical, but the data needed to check whether this is true are not readily available.
2. Firms with zero values for all variables were not excluded from the sample. As appendix A shows, only four industries contained firms with zero employment and nonzero values of the subsidy.
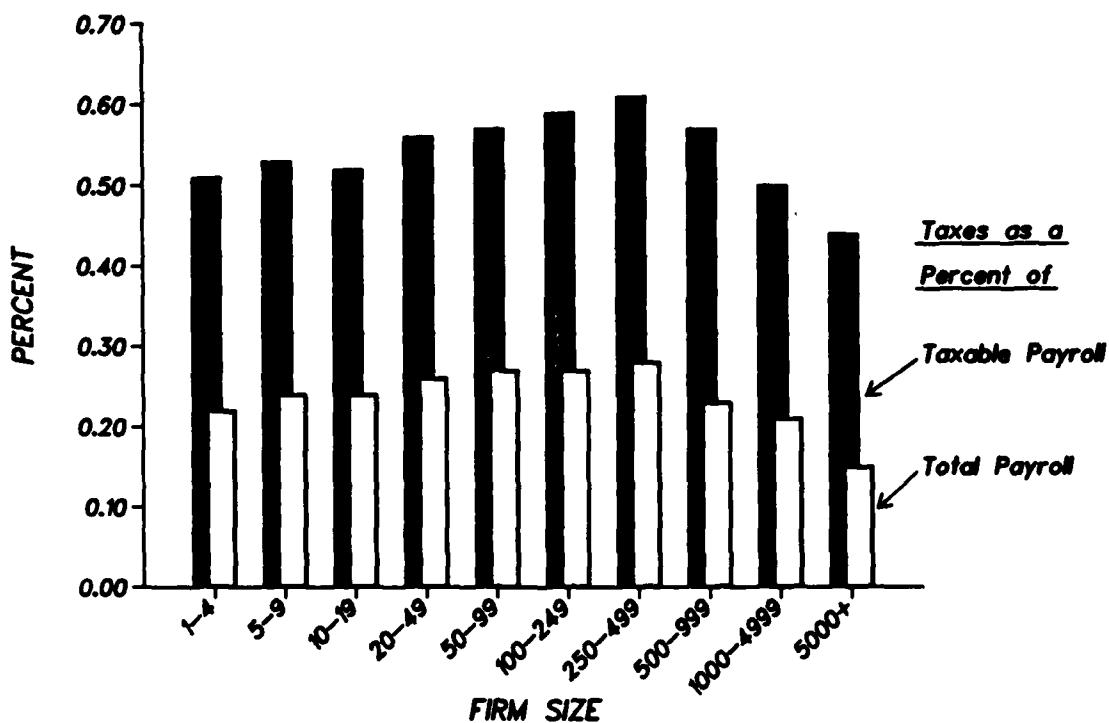
FIG. 7: TAX RATES BY FIRM SIZE — TEXAS, 1981
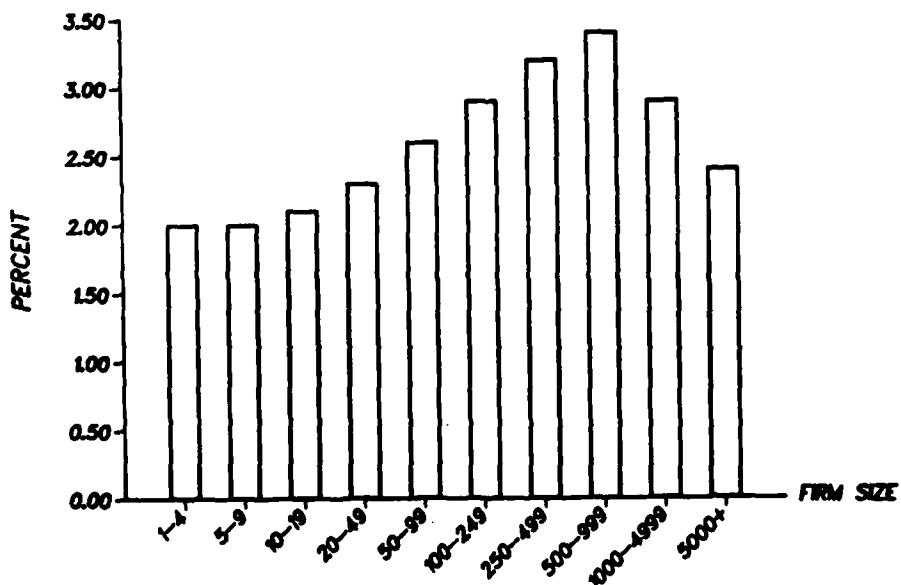
FIG. 8: LAYOFF RATE BY FIRM SIZE — TEXAS, 1981

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TABLE 27

UI SUBSIDY BY SIZE CLASS: TEXAS, 1978-82

Firm size	Number of firms	SUB2 ($000)	SUB2 per employee ($)
0	2,685	6	--
1-4	121,850	-9,736	-41.57
5-9	34,375	-7,694	-34.18
10-19	21,780	-8,059	-27.29
20-49	11,570	-6,258	-17.76
50-99	3,885	-28	-.11
100-249	1,958	3,244	11.08
250-499	540	3,292	17.70
500-999	224	7,285	48.06
1,000-4,999	183	8,141	22.22
5,000+	31	8,528	19.09
Total	199,081	-1,280	-.47

TABLE 28

UI SUBSIDY BY INDUSTRY: TEXAS, 1978-82

Industry	Number of firms	SUB2 ($000)	SUB2 per employee ($)
152	12,673	-1,998	-43
154	6,544	94	1
161	1,274	-280	-9
171	8,307	-2,663	-43
201	421	2,293	74
203	64	425	56
22	166	594	84
23	1,350	7,625	86
26	274	-617	-23
271	862	-781	-25
281	64	453	48
282	20	-197	-30
286	77	-88	-2
291	112	-623	-15
331	71	16,958	675
344	2,249	5,041	82
356	402	2,050	156
367	400	1,326	20
371	303	6,683	357
421	8,967	1,956	19
48	1,759	-4,460	-47
501	3,031	-11	0
508	13,269	4,609	31
512	726	-242	-16
514	3,167	1,224	26
531	189	-1,815	-13
541	11,218	-2,907	-13
551	2,538	-1,715	-26
554	13,231	-741	-9
581	31,516	-15,508	-36
602	1,801	-3,016	-34
631	559	-763	-28
651	12,154	-3,643	-54
701	3,955	-3,399	-39
721	4,945	-1,102	-30
723	8,855	-1,456	-46
734	3,309	-1,164	-14
736	2,579	987	17
794	173	-213	-54
801	17,337	-2,560	-39
805	862	-2,551	-32
811	11,365	-1,217	-29
891	5,943	2,134	36
Total	199,081	-1,280	0

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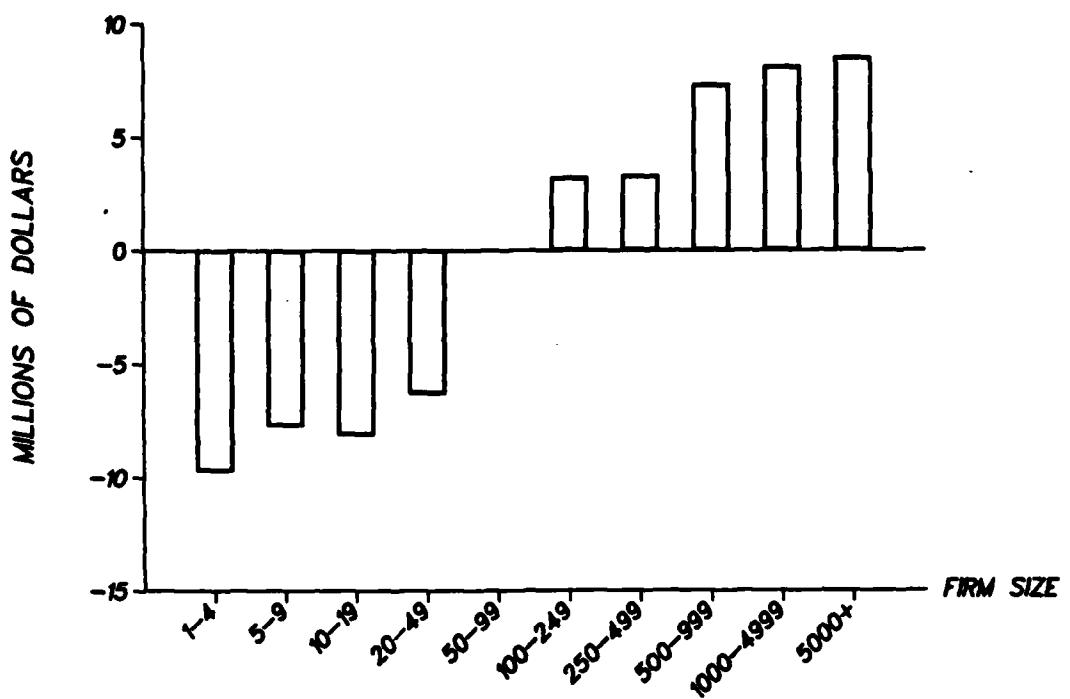
FIG. 9: SUB2 BY FIRM SIZE -- TEXAS, 1978 TO 1982

CONCLUSIONS

In this chapter we have examined the variation of UI tax rates, layoff rates, and the UI subsidy by firm size in three states. What conclusions can be drawn from this analysis?

In California, small firms (those with fewer than 100 employees) appeared to have substantially higher layoff rates than larger firms. This conclusion did not, however, hold for the other states. In Delaware, layoff rates for small firms were in the middle of the distribution, while firms with 1 to 49 employees in Texas had lower average layoff rates than larger firms did.

In each state, the ratio of UI taxes to taxable payroll had a tendency to rise with firm size up to a point, and then decline. Small firms did not appear to have inordinately high tax rates in any of the states. However, large firms did tend to have the lowest rates, especially when the ratio of taxes to total payroll was computed.

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SUB2, the dollar amount of the UI subsidy, had a different pattern in each of the three states. In California, SUB2 tended to decline as firm size rose, especially in the range 1 to 249 employees. In Delaware, SUB2 rose with firm size in the range 1-249 employees and declined thereafter (except for firms with 1,000-4,999 employees). In Texas the pattern was the strongest: SUB2 rose almost monotonically with firm size. While firms with less than 100 employees were the least subsidized by the UI system in Texas, in California and Delaware they were neither the most subsidized nor the least subsidized. In all three states, firms in the 1,000-4,999 category were heavily subsidized.

In California and Delaware, the subsidy rate, SUB2 per employee, followed the same general pattern as SUB2. In Texas, however, the large amount of employment in the two largest size categories meant that their subsidy rates were lower than that for the 500-999 category.

In sum, we do not feel that our study has revealed any tendency for the unemployment insurance system to treat small firms in a particularly favorable or unfavorable manner. In Texas, tax rates seem slightly out of line with layoff rates for the very smallest and largest firms, but in general tax rates seem to reflect either layoff rates or average benefits per claimant. Moreover, except in Texas small firms do not appear to be paying large subsidies to the UI system (compared to large firms),[1] nor are they being heavily subsidized by the system.

In Texas, the subsidy paid by firms with fewer than 50 employees-- i.e., the excess of UI taxes over benefits--equals about 0.13 percentage points of their taxable payroll over the period 1978-82. This seems like a small percentage, but it is high relative to the average tax rate. The subsidy from small to large firms would be eliminated if tax rates for firms with fewer than 50 employees were 0.13 percentage points lower, on average, and tax rates for firms with 100 or more employees were 0.08 percentage points higher (firms with 50 to 99 employees pretty much paid their own way).

Explaining the differences in results for California, Delaware, and Texas requires knowing the factors underlying those results. At least three major factors seem important in explaining the pattern of UI tax rates, layoff rates, and the UI subsidy:

- The characteristics of a state's UI system. These would include the method of experience rating as well as the value of various benefit and tax parameters, such as the tax rate and length of time before experience rating for new firms, the tax schedule for experience-rated firms, eligibility requirements, and the formulas for the weekly benefit amount and maximum benefit amount. Not only the

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1. All firms in California subsidized the balancing account.

parameters, but also the way the system works in practice, are important. For example, how are firms distributed along the tax schedule? What proportion of applicants qualifies for benefits? How does the average weekly benefit compare to the average weekly wage? Table 29 contains various measures of how generous state UI systems are to claimants and how burdensome they are to firms. It can be seen that states differ widely in both respects.

- The industrial mix within a state. Institutional factors within an industry (such as the degree of unionization) and the nature of demand for the industry's output are important determinants of the layoff rate and its seasonal and cyclical variation.

- Economic conditions within a state. While these are largely determined by conditions in the country as a whole, the industrial mix and exogenous factors (such as climate) can also affect the pattern of growth in a local economy.

In order to generalize the results of this study, it would be necessary, first, to determine the role of each of the above factors in the patterns observed in California, Delaware, and Texas. Next, it would be necessary to predict how changes in the UI system, the industrial mix, or economic conditions would alter those patterns. Such an investigation is beyond the scope of this study. In the next chapter we do, however, consider the effect of various changes in UI parameters on our three states.

TABLE 29

MEASURES OF STATE UI SYSTEMS, 1982[a]

State	Taxes as a fraction of total payroll (%)	Benefits as a fraction of total payroll (%)	Average weekly benefit	
			Amount ($)	Ratio to average weekly wage
United States	1.02	1.72	$119.34	.375
Alabama	1.07	1.56	80.24	.291
Alaska	1.89	1.60	130.25	.241
Arizona	.49	1.30	100.10	.329
Arkansas	1.26	1.78	96.06	.372
California	1.02	1.55	99.87	.291
Colorado	.38	.92	140.83	.415
Connecticut	.86	1.25	122.47	.363
Delaware	1.25	1.14	98.04	.292
Florida	.42	.75	95.28	.340
Georgia	.57	1.17	96.39	.337
Hawaii	1.29	1.64	129.82	.460
Idaho	1.42	2.74	116.45	.420
Illinois	1.46	2.42	146.01	.427
Indiana	1.03	1.47	94.24	.300
Iowa	1.17	2.43	137.26	.487
Kansas	.94	1.92	128.05	.440
Kentucky	1.76	2.42	116.01	.393
Louisiana	.76	2.23	144.75	.444
Maine	1.42	1.68	101.40	.396
Maryland	.52	1.66	116.14	.376
Massachusetts	1.35	1.42	115.36	.371
Michigan	1.28	3.24	154.38	.415
Minnesota	.99	1.89	137.08	.437
Mississippi	1.36	1.70	79.72	.315
Missouri	1.07	1.27	93.72	.309
Montana	1.29	1.80	122.11	.440
Nebraska	.52	1.06	96.73	.363
Nevada	1.02	1.91	116.00	.369
New Hampshire	.58	1.01	95.37	.347
New Jersey	1.42	1.85	120.09	.353
New Mexico	.91	1.36	105.49	.365
New York	1.06	1.11	98.88	.279
North Carolina	.74	1.74	104.01	.395
North Dakota	1.49	1.87	127.61	.459
Ohio	1.02	2.74	143.59	.439
Oklahoma	.32	1.05	137.22	.431
Oregon	1.70	2.94	117.48	.382
Pennsylvania	1.83	3.19	146.38	.468

TABLE 29 (Cont'd)

State	Taxes as a fraction of total payroll (%)	Benefits as a fraction of total payroll (%)	Average weekly benefit	
			Amount ($)	Ratio to average weekly wage
Rhode Island	2.26	2.53	107.67	.392
South Carolina	.86	1.93	93.83	.360
South Dakota	.60	.98	109.53	.461
Tennessee	1.05	1.67	87.02	.314
Texas	.23	.69	126.91	.382
Utah	1.10	1.95	129.68	.433
Vermont	1.33	2.04	107.42	.410
Virginia	.74	1.01	108.17	.379
Washington	1.65	2.51	130.68	.388
West Virginia	2.13	3.01	129.58	.400
Wisconsin	.88	1.24	136.62	.432
Wyoming	.86	2.02	136.56	.396

a. Source: [8].

SMALL BUSINESS AND CHANGES IN UI SYSTEMS

INTRODUCTION

A major goal of our research was to investigate the effect on small business of various changes in UI systems. The recessions of the past 15 years have put a tremendous strain on state UI funds; as a consequence, a number of proposals for reform of the system have been made. For example, a recent CBO report [7] mentions the following reforms:

- Indexing the taxable wage base to average wages

- Establishing a 2-week waiting period before UI benefits are available

- Limiting the maximum weekly benefit amount to 50 percent of the average weekly wage

- Letting the potential duration of extended benefits vary (currently potential duration is 13 weeks for all claimants).

Many proposed UI benefit parameter changes would reduce benefits (or leave them unchanged) for all claimants; similarly, many proposed changes in the tax system would increase taxes (or leave them unchanged) for all firms. Thus, to estimate the effect of a parameter change on small business we need to know whether benefits or taxes will change relatively more for small firms than for large ones. However, since most of the provisions of the UI system are not based explicitly on firm size, it is difficult to predict a priori the effect of most parameter changes on firms of different size. The only guess we would hazard to make without doing any computations is that an increase in the tax rate for new firms would hurt small business.

The ideal way to simulate the effects of a change in the UI system would be to use data for individual claimants (in the case of benefit changes) or firms (in the case of tax changes). Such a procedure would, unfortunately, be very costly. As an alternative, we employed a very simple procedure. For each of the three states studied (data permitting), the effects of changes in UI parameters on the UI subsidy were calculated for each size class using the aggregate data for that class--in effect, treating each size category as a single firm. Results for the size class as a whole and for the "average" firm in each class were then compared across categories.

The ultimate goal of the simulations was to determine which UI parameter changes, if any, might be especially beneficial or harmful to small business. In order to evaluate the simulation results, we needed to establish criteria for making these determinations.

First, what constitutes a "beneficial" change in the UI system? One possible definition says that a beneficial change is one that raises a firm's profits, and a harmful change is one that reduces profits. By this definition, a parameter change that increases UI taxes is unambiguously harmful, because it lowers profits.

A parameter change that increases UI benefits is somewhat harder to evaluate. An increase in benefits will generally lead to an increase in a firm's tax rate, which will lower profits. The connection between benefits and the tax rate is the strongest in reserve ratio and benefit ratio states, where benefits enter directly into the measure of a firm's experience. Even in benefit wage ratio states (like Delaware), an increase in benefits would be expected to affect the tax rate via the state experience factor. Since, however, experience rating is incomplete and occurs with a lag, the present value of a $1 increase in benefits is generally less than $1 (see [4]).

Against all of this is the fact that a firm may be able to lower its wages, thus raising its profits, when UI benefits rise. With a constant layoff rate, workers may be willing to accept lower wages while they are employed when their expected income from being unemployed rises. Because of these two conflicting possibilities, it is not clear a priori whether a parameter change that increases UI benefits will ultimately raise or lower a firm's profits. We will assume that the tax rate effect dominates the wage effect, so that a UI parameter change that increases benefits will be considered harmful to profits.

Besides determining whether a particular parameter change is good or bad, we needed to determine whether it is especially good or bad for small business. The criteria that we ultimately decided to use were (1) the resulting dollar change in benefits or taxes for the size class a whole and (2) the percentage change in benefits or taxes.[1]

The following sections discuss the assumptions underlying the simulation model and present the model and its results.

ASSUMPTIONS

To keep the simulations manageable, a number of simplifying assumptions were employed. For example, the behavior of firms and UI claimants was assumed not to change in response to changes in UI parameters. Moreover, tax rates were assumed not to change in response to changes in taxes or benefits. Because these factors were held constant, the simulation results represent a partial rather than general equilibrium.

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1. The percentage change in benefits or taxes, rather than the percentage change in the subsidy, was used as a criterion because the percentage change in a variable that is zero or negative is not very meaningful.

For the most part, the simulations did not incorporate incentive
effects, that is adaptive behavior by firms or claimants. The main
reason for this is that it is difficult to estimate precisely how much
firms or individuals would change their behavior. Firms were assumed
not to change their employment, wages, layoff rate, or recall rate in
response to changes in their taxes. In practice, firms would be
expected to respond to an increase in taxes by taking actions that would
ultimately lower their taxes, such as reducing layoffs or recalling
workers sooner. Similarly, the expected response to a decrease in taxes
is an increase in layoffs and ultimately in the tax rate. Thus, in
absolute value terms, the change in taxes calculated by the model can be
thought of as an upper bound on the change that would actually occur.

UI claimants were assumed not to change the duration of their
unemployment in response to changes in their benefits. Moreover, the
number of unemployed individuals who apply for benefits was assumed to
remain unchanged. In practice, any change in benefit provisions that
makes unemployment relatively more attractive--such as an increase in
the weekly benefit amount--would be expected to induce some claimants to
remain unemployed longer and also to encourage more individuals to apply
for benefits. In other words, a parameter change that would increase
benefits, ceteris paribus, could result in an even larger increase once
individuals reacted to the change. Similarly, a decrease in benefits
would be expected to induce claimants to return to work sooner, leading
to an even larger decrease. Thus, in absolute value terms, the change
in benefits calculated by the model can be thought of as a lower bound
on the change that would actually occur.

Even if firms or individuals did not react to changes in UI
parameters, a change in one parameter could lead to automatic changes in
other parameters due to the way the UI system is structured. The most
obvious example of such an effect occurs with tax rates. As noted
above, an increase in UI benefits will generally lead to an increase in
a firm's future tax rate. Similarly, an increase in taxes will
generally lead to a reduction in the future tax rate. This effect is
most direct in reserve ratio states, where taxes enter into the measure
of a firm's experience.

Because the simulations often covered a 4- or 5-year period,
second-round effects on tax rates would be expected to occur. However,
calculating these effects would have complicated the model substantial-
ly. By ignoring them, we effectively treated the entire time period as
1 year.

THE MODEL

In this section we present the model used to analyze the effects of
UI parameter changes. We first derive general expressions for the
resulting change in benefits or taxes, and then discuss the particular
parameter changes that were simulated.

First, what constitutes a "beneficial" change in the UI system? One possible definition says that a beneficial change is one that raises a firm's profits, and a harmful change is one that reduces profits. By this definition, a parameter change that increases UI taxes is unambiguously harmful, because it lowers profits.

A parameter change that increases UI benefits is somewhat harder to evaluate. An increase in benefits will generally lead to an increase in a firm's tax rate, which will lower profits. The connection between benefits and the tax rate is the strongest in reserve ratio and benefit ratio states, where benefits enter directly into the measure of a firm's experience. Even in benefit wage ratio states (like Delaware), an increase in benefits would be expected to affect the tax rate via the state experience factor. Since, however, experience rating is incomplete and occurs with a lag, the present value of a $1 increase in benefits is generally less than $1 (see [4]).

Against all of this is the fact that a firm may be able to lower its wages, thus raising its profits, when UI benefits rise. With a constant layoff rate, workers may be willing to accept lower wages while they are employed when their expected income from being unemployed rises. Because of these two conflicting possibilities, it is not clear a priori whether a parameter change that increases UI benefits will ultimately raise or lower a firm's profits. We will assume that the tax rate effect dominates the wage effect, so that a UI parameter change that increases benefits will be considered harmful to profits.

Besides determining whether a particular parameter change is good or bad, we needed to determine whether it is especially good or bad for small business. The criteria that we ultimately decided to use were (1) the resulting dollar change in benefits or taxes for the size class a whole and (2) the percentage change in benefits or taxes.[1]

The following sections discuss the assumptions underlying the simulation model and present the model and its results.

ASSUMPTIONS

To keep the simulations manageable, a number of simplifying assumptions were employed. For example, the behavior of firms and UI claimants was assumed not to change in response to changes in UI parameters. Moreover, tax rates were assumed not to change in response to changes in taxes or benefits. Because these factors were held constant, the simulation results represent a partial rather than general equilibrium.

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1. The percentage change in benefits or taxes, rather than the percentage change in the subsidy, was used as a criterion because the percentage change in a variable that is zero or negative is not very meaningful.

The model begins with the definition of the UI subsidy: the subsidy equals the sum over time of UI benefits minus UI taxes, or

$$SUB_i = \sum_{t=1}^{T} (BEN_{it} - TAX_{it}) .$$

The change in the subsidy due to a change in the parameter x is therefore

$$dSUB_i = \sum_t (\frac{dBEN_{it}}{dx} - \frac{dTAX_{it}}{dx}) dx .$$

Under our assumptions, most parameter changes will affect either benefits or taxes, but not both. $dSUB = dBEN$ in the case of a benefit parameter change, while $dSUB = -dTAX$ in the case of a tax parameter change.

For present purposes, it is useful to break benefits into three components:

$$BEN = (wba)(wc)(L) \tag{1}$$

where wba = average weekly benefit amount

wc = average weeks compensated per claimant

L = number of claimants receiving compensation.

The effect of a parameter change on benefits can then be expressed as:

$$\frac{dBEN}{dx} = \frac{\partial(wba)}{\partial x} (wc)L + \frac{\partial(wc)}{\partial x} (wba)L + \frac{\partial L}{\partial x} (wba)(wc) .$$

Many parameter changes will affect only one of the three components of BEN.

UI taxes can be expressed as the product of the tax rate and taxable payroll:

$$TAX = \tau W ,$$

so that the effect of a parameter change on taxes is

$$\frac{dTAX}{dx} = \frac{\partial \tau}{\partial x} (W) + \frac{\partial W}{\partial x} (\tau) .$$

Tables 30 and 31 summarize the various benefit and tax simulations that were performed. Whenever possible, the simulations covered the entire period of study: 1979-82 for California, 1978-81 for Delaware, and 1978-82 for Texas. Sometimes a parameter increase is not expected to have exactly the opposite effect as an equal parameter decrease, because different firms or individuals will be affected by the two changes. When the data permitted us to simulate both outcomes, we did so.

The simulations outlined in the tables represent a variety of parameter changes, but by no means all the proposed reforms of the UI system. Due to the nature of the data, some reforms of the system--for example, reducing the amount of noncharged benefits--could not be simulated at all. Other reforms could only be simulated in a crude fashion. Nevertheless, the simulations should provide some insight into the potential effects of UI parameter changes on small business.

The formulas for the change in benefits in table 30, and those for the change in taxes in table 31, are derived and explained below. Examination of these formulas reveals the variables that were used to estimate the effects of parameter changes. The results for firms of different size will depend on how these variables vary across size classes.

Benefit Simulations

In order to avoid further processing of the claim data, we restricted attention to benefit parameter changes that would affect all claimants. Thus, for example, a change in the minimum or maximum wba or in the earnings requirement could not be simulated.

Table 30 describes the benefit parameter changes that were simulated. Besides wba and wc, the variables referred to in the table are:

C = total number of individuals applying for benefits

L = number receiving compensation

L_{UI} = number receiving only regular UI

L_{EB} = number receiving extended benefits

L_{XUI} = number exhausting regular UI

L_{XEB} = number exhausting extended benefits.

Since not all claimants who apply for benefits qualify for them,

$$C \geq L = L_{UI} + L_{EB} .$$

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TABLE 30

UI BENEFIT SIMULATIONS

Parameter change	States (years)[a]	Formula for change
A. Change wba for all claimants		
1. Increase by 10 percent	BEN1: CA, DE, TX(81) BEN2: CA, DE, TX	$dBEN1 = .10(BEN1_1)$ $dBEN2 = .10(BEN2_1)$
2. Increase by $10	CA, DE, TX(81)	$dBEN1 = 10(wc)L$
B. Change waiting week provision		
1. Increase number of weeks by 1	CA, DE	$dBEN1 = -wba(L_{UI} + .5L_{EB})$
2. Decrease number of weeks by 1	CA	$dBEN1 = wba(L - L_{XUI} + .5(L_{EB} - L_{XEB}))$
C. Change potential duration		
1. Increase by 1 week		
a. No change in behavior	CA, DE	$dBEN1 = .5(wba)(L_{EB})$
b. Exhaustees increase duration	CA, DE, TX(81)	$dBEN1 = (wba)(L_{XUI})$
2. Decrease by 1 week	CA, DE	$dBEN1 = wba(-L_{XUI} + .5(L_{EB} - L_{XEB}))$
D. Change eligibility requirements		
1. Reduce L by 10 percent	BEN1:CA, DE, TX(81) BEN2:CA, DE, TX	$dBEN1 = -.10(BEN1_1)$ $dBEN2 = -.10(BEN2_1)$
2. Reject 5 percent more of benefit applicants	TX(81)	$dBEN1 = -.05(C/L)BEN1_1$

a. Years equal total period of study unless otherwise indicated.

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TABLE 31

UI TAX SIMULATIONS

Parameter change	States (years)[a]	Formula for change
A. Increase taxable wage base by $500	CA, DE, TX	$dTAX = \tau N(d\tilde{w})(1 + q(1 - 2\tilde{w}/w))$
B. Change tax treatment of new firms		
1. Increase tax rate by .01	DE(80), TX(81)	$dTAX = .01(W_N)$
2. Increase time before experience rating from 1 to 3 years	TX(81)	$dTAX = (.0055(n_2/n) + .0125(n_3/n))W$
C. Change minimum and maximum tax rates		
1. Increase minimum by .005	DE(80)	$dTAX = .005(W_L)$
2. Increase maximum by .005	CA(81), DE(80), TX(81)	$dTAX = .005(W_H)$
D. Change tax rates for all firms		
1. Increase by .001	CA, DE, TX	$dTAX = .001(W)$
2. Increase by 10%	CA, DE, TX	$dTAX = .10(TAX_1)$

a. Years equal total period of study unless otherwise indicated.

A claimant must exhaust regular UI before receiving extended benefits. However, extended benefits are not always available; the state or national trigger must be "on," indicating a period of high unemployment. Therefore,

$$L_{XUI} \geq L_{EB} \geq L_{XEB} .$$

The breakdown of benefits given by equation 1 was only available in our data for BEN1, benefits on a last-employer basis. Therefore most of the benefit parameter changes could only be applied to BEN1 and SUB1. For a firm, wba was calculated as the total benefits received by the claimants laid off by that firm divided by the total number of weeks in which those claimants received benefits. wc was computed as total weeks compensated divided by the number of claimants receiving compensation.

Two of the benefit parameter changes—the change in the waiting week provision and the change in the potential duration of benefits—were hypothesized to yield different results for different groups of claimants. Since not enough information was available at the aggregate level to calculate a separate weekly benefit amount for each of these groups, the simplifying assumption was made that the wba for the affected claimants was equal to the average wba for all the claimants in the size category.

Changing the Weekly Benefit Amount

The weekly benefit amount for a UI claimant is calculated as a fraction of base-period or high-quarter earnings, subject to a minimum and maximum. Increasing the wba for all claimants is equivalent to changing the formula for the wba as well as the minimum and maximum wba. Assuming that an increase in the wba would not affect average duration or the number of claimants compensated, the effect on benefits would be

$$dBEN = (wc)(L)d(wba) .$$

Two changes in weekly benefit amounts were simulated. An increase of 10 percent in every claimant's wba implies

$$dBEN = (wc)(L)(.10)(wba) = .10(BEN_1) \tag{2}$$

where BEN_1 is the initial value of benefits; that is, total benefits increase by 10 percent. Because equation 2 does not involve the individual components of benefits, it can be used to simulate a change in BEN2 as well as BEN1. An increase of $10 in every claimant's wba implies

$$dBEN = (wc)L(10) . \tag{3}$$

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The increase in benefits equals 10 times the total number of weeks compensated.

Changing the Waiting Week Provision

As of January 1983, 11 states had no waiting week provision, 34 states had a 1-week noncompensable waiting period, and 5 states had a 1-week waiting period which became compensable after 3 to 9 weeks of unemployment [6, p. 31]. Among the three states studied here, Delaware falls into the first of these categories, California into the second, and Texas into the third.

For California, we simulated the effects of (a) increasing the waiting period from one to two weeks and (b) eliminating the waiting week. For Delaware, we simulated the effects of instituting a waiting week. Two likely changes in waiting week provisions for Texas would involve either making the waiting week noncompensable for all claimants or eliminating it completely. Simulating either of these changes requires data on the number of claimants who were unemployed 3 weeks or more. Since this information was not readily available, no waiting week simulations were done for Texas.

Assuming no change in the duration of unemployment, increasing the number of waiting weeks means that all claimants will receive one less benefit payment. Claimants who collect only regular UI will receive one less payment from that fund, while claimants who collect extended benefits will receive one less payment from the EB program. Thus, since BEN equals regular UI plus one-half of EB,

$$dBEN = \sum_{i=1}^{L_{UI}} wba_i - .5 \sum_{i=1}^{L_{EB}} wba_i$$

where wba_i refers to individual i. In the absence of data on individuals' weekly benefit amounts, we substitute the average wba, so that

$$dBEN = - wba(L_{UI} + .5L_{EB}) . \tag{4}$$

Again assuming no change in unemployment duration, eliminating the waiting week means that all claimants who do not exhaust benefits will receive one more payment. (Since potential duration is assumed to remain the same, individuals who previously exhausted regular UI or EB will receive the same number of payments as before.) Using the same line of reasoning as in the previous paragraph yields the formula

$$dBEN = wba(L - L_{XUI} + .5(L_{EB} - L_{XEB})) . \tag{5}$$

Changing the Potential Duration of Benefits

In most states (including the three studied here), the number of weeks during which regular UI benefits can be received is not the same for all claimants, but rather depends on an individual's base-period earnings or weeks of work. Maximum potential duration is 26 weeks in most states; minimum potential duration is as low as 1 week in some states but is generally at least 10 weeks. It would be interesting to study the effects of making potential duration the same for everyone or of changing the formula for potential duration. Unfortunately, simulating these changes requires individual data. We have chosen instead to estimate the effects of increasing or decreasing potential duration by 1 week for all claimants.

Assuming no change in actual duration, an increase of 1 week in potential duration would have no effect on the total amount of benefits paid. Claimants who receive extended benefits would now receive one more payment of regular UI and one less payment of extended benefits. Since only half of EB is paid for by the state, the change in BEN is

$$dBEN = \sum_{i=1}^{L_{EB}} wba_i - .5 \sum_{i=1}^{L_{EB}} wba_i = .5(wba)L_{EB} \tag{6}$$

after substituting in the average weekly benefit amount.

It is reasonable to assume that at least some claimants would remain unemployed longer in response to an increase in potential duration. Individuals who previously exhausted benefits seem especially likely to do this. If all who exhausted regular UI remained unemployed one more week, the change in benefits would be

$$dBEN = (wba)L_{XUI} . \tag{7}$$

Returning to the assumption of no change in actual duration, a decrease of 1 week in potential duration should have the following consequences. All claimants who previously exhausted regular UI will now exhaust 1 week sooner, and so receive one less payment. Claimants who receive both regular UI and extended benefits will make up for their loss of regular UI by collecting one more EB payment, _unless_ they exhausted EB as well as regular UI. In sum,

$$dBEN = wba[-L_{XUI} + .5(L_{EB} - L_{XEB})] . \tag{8}$$

The simulations given by equations 6 and 8 were not performed for Texas because the variables L_{EB} and L_{XEB} were not available.

Changing Eligibility Requirements

Eligibility requirements encompass a number of provisions. An unemployed individual cannot receive UI benefits unless: he was laid off (or quit with good cause); is able to work and available for work; and meets qualifying requirements expressed in terms of base-period earnings or weeks of work. A claimant must be actively seeking work and will generally be disqualified from further benefit payments if he refuses an offer of suitable work without good cause.

While most state eligibility provisions are broadly similar on paper, states differ widely in the amount of screening they do and in their interpretation of terms like "good cause" and "suitable work." Since we do not have data concerning disqualification rates, we do not know much about differences among our three states in the enforcement of eligibility requirements. Nevertheless, it seemed worthwhile to perform some simple simulations of changes in eligibility requirements (or their enforcement).

A change in eligibility provisions, holding the weekly benefit amount and average duration constant,[1] will affect the number of claimants receiving compensation. The effect on benefits is

$$dBEN = (wba)(wc)dL.$$

We simulated two changes in eligibility requirements. First, assume that requirements are tightened in such a way that the number of claimants compensated declines by 10 percent for all firms. The resulting change in benefits is

$$dBEN = (wba)(wc)(-.10)L = -.10(BEN_1). \tag{9}$$

That is, benefits are reduced by 10 percent. There are two things to note about this formula. First, it could just as well represent the effects of reducing average duration by 10 percent, leaving the other two components of benefits unchanged, or of reducing the average weekly benefit amount by 10 percent. Second, equation 9 can be used to simulate a change in BEN_2 as well as BEN_1.

The second eligibility simulation was designed to make use of the Texas data on the number of individuals who applied for UI benefits but did not receive them. Suppose that eligibility was tightened in such a way that 5 percent more of each firm's benefit applicants (C) were rejected. In this situation, the percent decrease in claimants

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1. A change of this type can be thought of as a change in the initial screening of claimants rather than in the amount of screening done after benefit payments have begun. The latter type of change might be expected to affect average duration.

compensated (L) would differ among firms. The change in benefits would be

$$dBEN = (wba)(wc)(-.05)C = -.05(C/L)BEN_1 \ . \tag{10}$$

Tax Simulations

Changes in tax parameters can be divided into changes that affect taxable payroll--such as a change in the taxable wage base--and changes in tax rates. Some proposed changes in tax rates would only affect particular groups of firms, such as new firms and firms at the top or bottom of the tax schedule. Other tax rate changes amount to a shifting of the tax schedule for all firms.

Table 31 summarizes the tax simulations that were performed. Besides τ and W, the variables referred to in the table are:

N = employment

$\tilde{w}$ = taxable wage base

q = rate of interfirm turnover

w = average annual earnings

n = total number of firms in a size class

n_i = number of firms with age between $(i-1)$ and i, $i = 2,3$

W_N = taxable payroll of new firms

W_L = taxable payroll of firms paying the minimum tax rate

W_H = taxable payroll of firms paying the maximum tax rate.

Changing the tax treatment of new firms and changing minimum and maximum tax rates will affect only certain groups of firms. When separate information for these groups was not available at the aggregate level, the simplifying assumption was made that taxable payroll for the affected firms was equal to average taxable payroll for all the firms in the size class.

Changing the Taxable Wage Base

The relationship between the taxable wage base $(\tilde{w})$ and a firm's taxable payroll (W) is quite complicated. Only under very restrictive conditions will taxable payroll equal the taxable wage base times employment: $W = \tilde{w}N$. One situation in which this equality will hold is if there is no turnover and all employees earn at least $\tilde{w}$.

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The existence of interfirm turnover—that is, movement of workers between firms (as opposed to within firms)—complicates the calculation of taxable payroll because it creates a divergence between the average stock of employment (N) and the total number of workers ever employed (N'). The complication arises because taxable payroll is based on the earnings of every worker employed during a calendar year, but data usually refer to the stock of employment at a given time. If q = the separation rate and the stock of employment is constant (so that q represents the accession rate as well), $N' = (1 + q)N$. Taxable payroll will not, however, necessarily equal $\tilde{w}$ times N', because some workers will not remain with the firm long enough to earn $\tilde{w}$ even if their annual rate of pay exceeds $\tilde{w}$.

Brechling [3] devised the following formula for taxable payroll:

$$W = \tilde{w}(1 + q(1 - \tilde{w}/w))N.$$

This formula is based on a constant stock of employment and a constant rate of separations and accessions. All employees are assumed to earn the same annual wage $w \geq \tilde{w}$. The formula implies that taxable payroll per employee, W/N, exceeds the taxable wage base. In our tabulations for California, Delaware, and Texas, this relationship did not always hold; taxable payroll per employee was often less than $6,000. In reality, not all employees earn the same amount, and the number earning less than the taxable wage base from a given firm is sometimes large enough to pull average taxable payroll for that firm below $\tilde{w}$.

Brechling's formula implies that the change in taxable payroll resulting from a change in the taxable wage base will depend on w, $\tilde{w}$, q, and N. The accompanying change in taxes is then

$$dTAX = \tau \frac{\partial W}{\partial \tilde{w}} (d\tilde{w}) = \tau N(d\tilde{w})(1 + q(1 - 2\tilde{w}/w)) \quad . \tag{11}$$

Equation 11 was used to simulate the effect of an increase of $500 in $\tilde{w}$. w, average annual earnings, was calculated as total payroll divided by employment. q is supposed to equal the rate of interfirm turnover, which consists of quits, permanent layoffs, and other separations (such as retirements and deaths). Because the data did not contain all the information needed to compute q, the layoff rate (as defined in the previous chapter) was used as a proxy.

It is not clear whether the layoff rate understates or overstates q. For California and Delaware, only quits and layoffs who received UI are included in the layoff rate, but temporary as well as permanent layoffs are included. For Texas, all layoffs who applied for UI are included, but quits are not. To complicate things even more, in California and Texas only the first spell of unemployment in each benefit year is counted in the layoff rate.

END
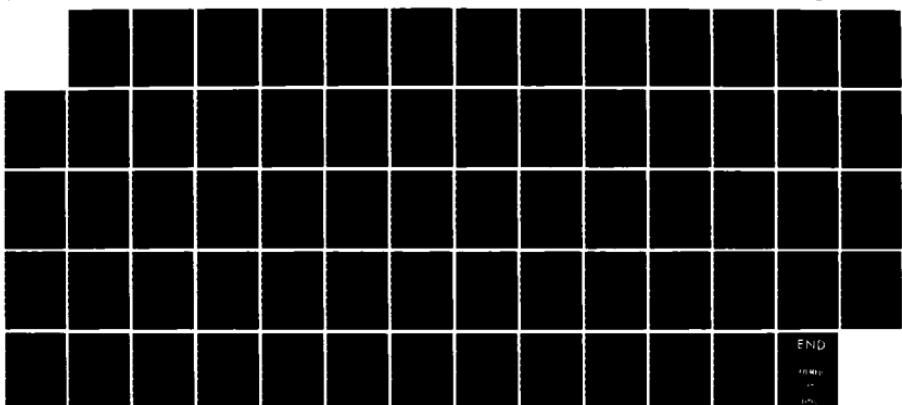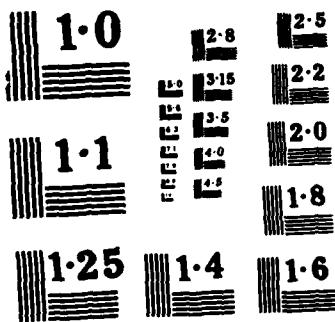
Changing the Tax Treatment of New Firms

Simulating changes in the way new firms are treated by the UI system is of special interest for this project, since most new firms are small. The two major policy changes that could occur would be to change the tax rate for non-experience-rated firms and to change the length of time before experience rating begins.

Only the Texas data included the age of the firms, so for the most part our new-firm parameter simulations were confined to that state. For Delaware, we did a tax rate simulation based on the assumption that all firms with a tax rate of 4.2 percent (2.7 percent + 1.5 percent supplemental assessment rate) were new firms.[1] For both states, the simulations were done for only one year because new firms change from year to year.

The effect on taxes of increasing the tax rate for new firms by .01 is:

$$dTAX = .01(W_N) \qquad\qquad (12)$$

where W_N is the taxable payroll of new firms. In the Delaware simulation, W_N equals the sum of taxable payroll over all new firms. In the Texas simulation, estimated taxable payroll for new firms equals taxable payroll for the size class times the fraction of firms in the size class with age between 0 and 1.

Since new firms in Texas become experience rated after only 1 year,[2] we decided to simulate an increase in the length of time before experience rating (from 1 to 3 years) rather than a decrease. Table 32 shows the average tax rates for the different age groups. It is not clear why the tax rate for the very youngest firms is so much lower than 2.7 percent; perhaps many of these firms are the product of mergers. In any case, it appears that becoming experience rated results in a dramatic reduction in the tax rate in Texas.

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1. Judging from the frequency distribution of tax rates, only a few experience-rated firms would be expected to have a tax rate of 4.2 percent.
2. Technically, 15 to 18 months can elapse from the time a firm begins operations to the time it begins paying experience-rated taxes. Thus, one would expect to find no firms that were completely experience-rated (that is, experience rated throughout 1981) in the 0-1 age category, some in the 1-2 category, and only completely experience-rated firms in the higher age groups.

TABLE 32

AVERAGE TAX RATE BY AGE GROUP: TEXAS, 1981

Age (years)	Tax rate (%)
0-1	1.55
1-2	1.00
2-3	.30
3-4	.35
4-5	.42
5-10	.43
10-25	.50
25-50	.47

The effect on taxes of an increase in the amount of time before experience rating is:

$$dTAX = \sum_i (d\tau_i) W_i$$

where $d\tau_i$ is the change in the tax rate for firm i, which formerly was eligible for experience rating but now is not. $d\tau$ will differ among firms. As an approximation, we set $d\tau$ for firms with age between 1 and 3 equal to the difference between the average tax rate for their age class and the average tax rate for firms with age between 0 and 1. As in the tax rate simulation, taxable payroll for the affected firms was estimated as taxable payroll for the size class times the fraction of the firms in the size class with age between 1 and 2 or age between 2 and 3. Thus, the formula for the change in taxes was:

$$dTAX = (.0155 - .0100)(n_2/n)W + (.0155 - .0300)(n_3/n)W . \qquad (13)$$

Changing Minimum and Maximum Tax Rates

One of the most frequently recommended reforms of the UI system is to extend the degree of experience rating, and one of the most obvious ways to do that is to eliminate minimum and maximum tax rates, or at least increase the spread between them. The further apart the minimum and maximum tax rates are, the more firms will be subject to experience rating.

Raising the minimum tax rate will not have precisely the same effect as will lowering it by the same amount. Raising the minimum will cause tax rates to rise by the same amount for all firms paying the old minimum; rates will also increase, in varying amounts, for firms paying rates between the old and new minima. Lowering the minimum will cause

tax rates to fall in varying amounts for firms at the old minimum.[1] Unfortunately, our aggregated data did not allow us to simulate these changes precisely.

We simulated the effects of an increase in both the minimum and the maximum tax rate. As in the new-firm simulations, we concentrated on 1 year because different groups of firms pay the minimum and maximum rates in different years.

The effect of an increase of 0.005 in the minimum tax rate was calculated as:

$$dTAX = .005(W_L) \tag{14}$$

where W_L is the taxable payroll of firms paying the minimum rate. Similarly, the effect of an increase of 0.005 in the maximum tax rate was calculated as:

$$dTAX = .005(W_H) \tag{15}$$

where W_H is the payroll of firms paying the maximum rate; that is, it was assumed that the rates of all these firms would rise from the old maximum to the new one.

Both equations 14 and 15 were simulated for Delaware, and W_L and W_H for that state represent sums of taxable payroll for the affected firms. The aggregated data for California and Texas did not allow us to isolate those firms paying the minimum tax rate, so only equation 15 was simulated. For these two states, W_H was estimated as taxable payroll for the size class times the fraction of firms in the size class paying the maximum tax rate.

Changing Tax Rates for All Firms

A firm's UI tax rate is generally a function of the firm's own unemployment experience--as summarized in its benefit ratio, benefit wage ratio, or reserve ratio--and some measure of the state's experience. The slope of the tax schedule indicates how much the tax rate changes in response to a change in the firm's BR, BWR, or RR. A change in the tax rate for all firms is equivalent to a change in the formula for the tax rate as well as in the minimum and maximum rates.

We simulated the effects of two types of shift in the tax schedule. An increase of 0.001 in each firm's tax rate implies an upward shift in the schedule with no change in its slope. The change in taxes is:

$$dTAX = .001(W) . \tag{16}$$

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1. Similar arguments apply to changing the maximum tax rate; substitute "increase" for "decrease," and vice versa.

An increase of 10 percent in each firm's tax rate implies an upward shift in the schedule accompanied by an increase in its slope. In this case the change in taxes is

$$dTAX = .10(\tau)W = .10(TAX_l) .\qquad(17)$$

That is, taxes increase by 10 percent as well.

RESULTS

Tables 33 through 42 present the results of simulating equations 2 through 17. Both the absolute change in benefits or taxes (in thousands of dollars) and the percentage change (in percent) are given. The results obtained when the number of claimants compensated is decreased by 10 percent are the negative of the results in table 33, in which the weekly benefit amount is increased by 10 percent.

Overall Results

First, we examine the aggregate results for the three states. While the direction of the effect of a parameter change on benefits or taxes can be predicted from the formulas, the relative magnitudes of the effects of different parameter changes usually cannot. Some interesting results from the benefit simulations follow:

- Increasing the weekly benefit amount by $10 resulted in the greatest percentage increase in benefits in Texas, where the wba is relatively low, and the smallest percentage increase in Delaware. Benefits increased by more than 10 percent in California and Texas.

- As expected from the formulas, an increase in the number of waiting weeks in California caused a greater change in benefits (in absolute value) than a decrease in the number of waiting weeks.

- As expected from the formulas, benefits increased more in response to an increase in potential duration when exhaustees increased their actual duration than when there was no response by claimants. In addition, the change in benefits resulting from an increase in both potential duration and exhaustees' actual duration was greater (in absolute value) than the change resulting from a decrease in potential duration.

- While in theory a change in waiting week provisions could have either a greater or smaller impact on benefits than a change in potential duration, in our results changes in waiting week provisions had a much larger effect.

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TABLE 33

SIMULATION RESULTS:
INCREASE WBA BY 10 PERCENT

Firm size	California dBEN1	California dBEN1/BEN1	Delaware dBEN1	Delaware dBEN1/BEN1	Texas dBEN1	Texas dBEN1/BEN1
0	--	--	4	10.0	50	10.0
1-4	8,411	10.0	295	10.0	193	10.0
5-9	7,776	10.0	291	10.0	250	10.0
10-19	10,447	10.0	422	10.0	356	10.0
20-49	17,200	10.0	758	10.0	536	10.0
50-99	12,207	10.0	803	10.0	538	10.0
100-249	5,294	10.0	1,004	10.0	719	10.0
250-499	3,320	10.0	373	10.0	468	10.0
500-999	2,126	10.0	241	10.0	457	10.0
1,000-4,999	3,921	10.0	3,305	10.0	882	10.0
5,000+	5,122	10.0	331	10.0	884	10.0
Total	75,824	10.0	7,828	10.0	5,333	10.0

Firm size	California dBEN2	California dBEN2/BEN2	Delaware dBEN2	Delaware dBEN2/BEN2	Texas dBEN2	Texas dBEN2/BEN2
0	--	--	15	10.0	1	10.0
1-4	14,534	10.0	331	10.0	1,600	10.0
5-9	12,228	10.0	349	10.0	1,687	10.0
10-19	15,940	10.0	459	10.0	2,584	10.0
20-49	24,600	10.0	850	10.0	3,949	10.0
50-99	19,721	10.0	849	10.0	3,773	10.0
100-249	18,745	10.0	1,125	10.0	5,042	10.0
250-499	12,728	10.0	410	10.0	3,431	10.0
500-999	13,994	10.0	323	10.0	3,171	10.0
1,000-4,999	26,618	10.0	3,440	10.0	5,333	10.0
5,000+	22,352	10.0	357	10.0	5,662	10.0
Total	181,459	10.0	8,507	10.0	36,231	10.0

TABLE 34

SIMULATION RESULTS:
INCREASE WBA BY $10

Firm size	California dBEN1	California dBEN1/BEN1	Delaware dBEN1	Delaware dBEN1/BEN1	Texas dBEN1	Texas dBEN1/BEN1
0	--	--	4	12.8	95	19.1
1-4	9,804	11.7	310	10.5	384	19.9
5-9	8,898	11.4	299	10.3	478	19.1
10-19	11,799	11.3	430	10.2	661	18.6
20-49	18,623	10.8	770	10.2	990	18.5
50-99	13,331	10.9	764	9.5	986	18.3
100-249	5,722	10.8	928	9.2	1,312	18.3
250-499	3,693	11.1	349	9.3	881	18.8
500-999	2,335	11.0	259	10.8	760	16.6
1,000-4,999	3,972	10.1	2,696	8.2	1,527	17.3
5,000+	6,923	13.5	344	10.4	1,504	17.0
Total	85,099	11.2	7,154	9.1	9,578	18.0

TABLE 35

SIMULATION RESULTS:
CHANGE WAITING WEEK PROVISIONS

Firm size	Increase no. of weeks by 1 California dBEN1	Increase no. of weeks by 1 California dBEN1/BEN1	Increase no. of weeks by 1 Delaware dBEN1	Increase no. of weeks by 1 Delaware dBEN1/BEN1	Decrease no. of weeks by 1 California dBEN1	Decrease no. of weeks by 1 California dBEN1/BEN1
0	--	--	-3	-8.4	--	--
1-4	-5,742	-6.8	-225	-7.6	4,436	5.3
5-9	-5,629	-7.2	-245	-8.4	4,658	6.0
10-19	-7,717	-7.4	-366	-8.7	6,483	6.2
20-49	-13,170	-7.7	-752	-9.9	11,192	6.5
50-99	-9,688	-7.9	-806	-10.0	8,328	6.8
100-249	-4,030	-7.6	-1,438	-14.3	3,385	6.4
250-499	-2,652	-7.7	-528	-14.1	2,219	6.7
500-999	-1,874	-8.8	-264	-11.0	1,632	7.7
1,000-4,999	-3,517	-9.0	-7,423	-22.5	3,107	7.9
5,000+	-5,585	-10.9	-193	-5.8	4,981	9.7
Total	-59,514	-7.8	-12,243	-15.6	50,421	6.6

TABLE 36

SIMULATION RESULTS:
INCREASE POTENTIAL DURATION BY 1 WEEK

A. No change in claimant behavior

Firm size	California		Delaware	
	dBEN1	$\dfrac{dBEN1}{BEN1}$	dBEN1	$\dfrac{dBEN1}{BEN1}$
0	--	--	0	0
1-4	384	.46	6	.21
5-9	407	.52	6	.22
10-19	531	.51	9	.22
20-49	850	.49	16	.22
50-99	662	.54	22	.27
100-249	268	.51	20	.20
250-499	174	.52	6	.16
500-999	109	.51	6	.26
1,000-4,999	217	.55	25	.07
5,000+	297	.58	4	.11
Total	3,897	.51	121	.15

B. Exhaustees increase duration by 1 week

Firm size	California		Delaware		Texas	
	dBEN1	$\dfrac{dBEN1}{BEN1}$	$\dfrac{dBEN1}{dBEN1}$	BEN1	$\dfrac{dBEN1}{dBEN1}$	BEN1
0	--	--	1	2.81	6	1.28
1-4	1,930	2.29	54	1.83	25	1.28
5-9	1,649	2.12	53	1.81	31	1.25
10-19	2,120	2.03	76	1.79	43	1.22
20-49	3,400	1.98	133	1.76	71	1.32
50-99	2,483	2.03	146	1.82	71	1.33
100-249	1,083	2.04	166	1.65	95	1.33
250-499	641	1.93	59	1.58	56	1.19
500-999	428	2.02	48	1.97	57	1.25
1,000-4,999	776	1.98	207	.63	94	1.07
5,000+	1,101	2.15	21	.62	93	1.05
Total	15,611	2.06	963	1.23	644	1.21

TABLE 37

SIMULATION RESULTS:
DECREASE POTENTIAL DURATION BY 1 WEEK

Firm	California		Delaware	
		$\frac{dBEN1}{BEN1}$		$\frac{dBEN1}{BEN1}$
size	dBEN1		dBEN1	
0	--	--	-1	-2.81
1-4	-1,689	-2.01	-51	-1.71
5-9	-1,378	-1.77	-48	-1.66
10-19	-1,765	-1.69	-70	-1.65
20-49	-2,827	-1.64	-123	-1.62
50-99	-2,022	-1.66	-132	-1.65
100-249	-913	-1.72	-152	-1.52
250-499	-517	-1.56	-55	-1.46
500-999	-351	-1.65	-43	-1.79
1,000-4,999	-627	-1.60	-187	-.57
5,000+	-901	-1.76	-19	-.56
Total	-12,991	-1.71	-881	-1.12

TABLE 38

SIMULATION RESULTS:
REJECT 5 PERCENT MORE BENEFIT APPLICANTS

Firm	Texas	
		$\frac{dBEN1}{BEN1}$
size	dBEN1	
0	-45	-9.0
1-4	-285	-14.8
5-9	-421	-16.8
10-19	-613	-17.4
20-49	-975	-18.2
50-99	-945	-17.6
100-249	-1,134	-15.8
250-499	-711	-15.2
500-999	-670	-14.7
1,000-4,999	-1,240	-14.1
5,000+	-1,262	-14.3
Total	-8,305	-15.6

TABLE 39

SIMULATION RESULTS:
INCREASE TAXABLE WAGE BASE BY $500

Firm size	California dTAX	California dTAX/TAX	Delaware dTAX	Delaware dTAX/TAX	Texas dTAX	Texas dTAX/TAX
0	--	--	0	0	0	0
1-4	14,443	9.7	361	10.3	3,122	12.1
5-9	14,207	9.4	360	10.3	2,933	11.9
10-19	17,415	9.0	446	10.1	3,867	11.4
20-49	26,796	8.8	801	9.8	4,814	10.5
50-99	22,215	8.6	683	9.4	3,627	9.6
100-249	21,445	8.3	898	9.9	4,285	9.1
250-499	13,555	8.1	497	10.6	2,763	8.9
500-999	11,881	8.1	846	8.9	2,059	8.4
1,000-4,999	30,121	10.3	2,463	9.5	4,308	9.5
5,000+	37,657	8.1	1,271	8.1	4,843	10.1
Total	209,733	8.8	8,627	9.4	36,621	10.1

TABLE 40

SIMULATION RESULTS:
CHANGE TREATMENT OF NEW FIRMS

Firm size	Increase tax rate by .01 Delaware dTAX	Delaware dTAX/TAX	Texas dTAX	Texas dTAX/TAX	Increase time before exp. rating from 1 to 3 years Texas dTAX	Texas dTAX/TAX
0	0	0	0	0	0	0
1-4	88	10.7	980	22.7	2,016	46.7
5-9	62	7.4	1,022	18.7	2,466	45.2
10-19	66	6.1	1,161	16.0	2,921	40.3
20-49	93	4.5	1,093	10.8	3,066	30.3
50-99	37	2.1	771	8.7	2,020	22.8
100-249	67	2.6	461	4.3	1,971	18.5
250-499	0	0	292	4.2	987	14.2
500-999	24	1.0	133	2.2	699	11.8
1,000-4,999	0	0	486	4.7	808	7.8
5,000+	0	0	0	0	454	4.2
Total	439	1 8	6,399	7.9	17,408	21.6

TABLE 41

SIMULATION RESULTS:
CHANGE MINIMUM AND MAXIMUM TAX RATES

A. Increase minimum by .005

Firm size	Delaware dTAX	Delaware dTAX/TAX
0	0	0
1-4	58	7.0
5-9	58	6.9
10-19	52	4.8
20-49	66	3.2
50-99	26	1.5
100-249	29	1.1
250-499	19	1.5
500-999	0	0
1,000-4,999	0	0
5,000+	0	0
Total	308	1.3

B. Increase maximum by .005

Firm size	California dTAX	California dTAX/TAX	Delaware dTAX	Delaware dTAX/TAX	Texas dTAX	Texas dTAX/TAX
0	0	0	0	0	0	0
1-4	362	1.14	6	.75	91	2.12
5-9	271	.78	5	.54	54	1.00
10-19	390	.87	6	.54	62	.86
20-49	538	.78	20	.97	60	.59
50-99	516	.86	38	2.16	83	.93
100-249	638	1.07	45	1.76	127	1.19
250-499	571	1.54	22	1.78	67	.96
500-999	566	1.73	0	0	44	.74
1,000-4,999	483	.76	198	2.73	60	.58
5,000+	1,026	.98	0	0	413	3.83
Total	5,361	1.00	339	1.42	1,061	1.31

TABLE 42

SIMULATION RESULTS:
CHANGE TAX RATES FOR ALL FIRMS

A. Increase by .001

Firm size	California dTAX	California dTAX/TAX	Delaware dTAX	Delaware dTAX/TAX	Texas dTAX	Texas dTAX/TAX
0	--	--	0	0	0	0
1-4	5,187	3.47	116	3.31	4,788	18.6
5-9	5,274	3.49	122	3.51	4,674	19.0
10-19	6,559	3.40	154	3.48	6,424	19.0
20-49	10,293	3.38	283	3.48	8,317	18.2
50-99	8,716	3.38	234	3.22	6,912	18.3
100-249	8,747	3.37	272	3.02	8,047	17.1
250-499	5,548	3.33	159	3.37	5,215	16.8
500-999	4,801	3.28	411	4.34	4,517	18.5
1,000-4,999	10,582	3.61	875	3.36	9,606	21.3
5,000+	20,354	4.40	880	5.64	11,118	23.1
Total	86,061	3.61	3,506	3.82	69,617	19.1

B. Increase by 10 percent

Firm size	California dTAX	California dTAX/TAX	Delaware dTAX	Delaware dTAX/TAX	Texas dTAX	Texas dTAX/TAX
0	--	--	0	0	0	0
1-4	14,954	10.0	351	10.0	2,573	10.0
5-9	15,097	10.0	348	10.0	2,456	10.0
10-19	19,271	10.0	443	10.0	3,390	10.0
20-49	30,492	10.0	813	10.0	4,574	10.0
50-99	25,747	10.0	725	10.0	3,775	10.0
100-249	25,922	10.0	903	10.0	4,717	10.0
250-499	16,668	10.0	471	10.0	3,102	10.0
500-999	14,643	10.0	947	10.0	2,443	10.0
1,000-4,999	29,307	10.0	2,605	10.0	4,519	10.0
5,000+	46,302	10.0	1,561	10.0	4,809	10.0
Total	238,403	10.0	9,166	10.0	36,359	10.0

- Because less than half of benefit applicants received compensation in Texas, rejecting 5 percent more of the benefit applicants decreased benefits more than did reducing the number of claimants compensated by 10 percent.

On the tax side, we found:

- Increasing the taxable wage base resulted in roughly the same percentage increase in taxes in each of the three states.

- Increasing the tax rate for new firms had a much larger effect on taxes in Texas than in Delaware. Lengthening the time before experience rating in Texas had a very large effect.

- Increasing the minimum tax rate in Delaware had roughly the same effect on taxes as increasing the maximum tax rate.

  Increasing the maximum tax rate resulted in about the same percentage increase in taxes in each of the three states.

- In Delaware, increasing the tax rate for new firms would have a somewhat smaller effect on taxes than would increasing the minimum or the maximum tax rate by the same amount. In Texas, the opposite would be true.

- Because the tax rate is so low in Texas, increasing the tax rate for all firms by 0.001 had a much larger effect on taxes in that state than in the other two states. In California and Delaware, increasing tax rates by 0.001 had a smaller effect than increasing them by 10 percent, but the opposite was true in Texas.

Results by Size Class

When examining the pattern of results by size class, we began by asking several questions about each set of simulation results:

- Does the pattern of the UI subsidy across size classes change substantially?

- Is the dollar change in the subsidy greater for small firms as a group than for large ones?

- Is the dollar change in the subsidy for the typical firm in a size class (the total change divided by the number of firms in the class) greater for small firms?

- Is the percentage change in benefits or taxes greater for small firms? This measure can be thought of as applying to a size class as a whole or to the typical firm in a size class.

Because the parameter changes that were simulated were relatively small in magnitude,[1] in most cases they did not lead to large changes in the pattern of the UI subsidy. In California and Delaware, some of the parameter changes caused the 1,000-4,999 size class, which was relatively highly subsidized, to become much less so. In Texas, several of the changes caused the 500-999 size class to replace the 5,000+ category as the most heavily subsidized group. Aside from these shifts, the simulation results generally involved only minor changes in the rankings of the size classes.

We also found that, with rare exceptions, the dollar change in benefits or taxes for a typical firm increased monotonically (in absolute value) with firm size. Thus, this criterion did not seem very useful in distinguishing beneficial parameter changes from harmful ones. We therefore concentrated on two criteria: (a) the dollar change in benefits or taxes for the size class as a whole and (b) the percentage change in benefits or taxes.

Effects in Dollar Terms

Consider first the dollar change in benefits or taxes. In each of the three states, there was a consistent pattern of results across the various benefit simulations. In California, a benefit parameter change affected BEN1 the most for firms with 1-99 employees (there was no strong pattern in dBEN2). In Delaware, firms with 1,000-4,999 employees were affected the most by a benefit parameter change (using either BEN1 or BEN2), followed by firms with 10-499 employees, especially firms in the 20-249 range. In Texas, firms with 1,000 or more employees were affected the most by a benefit parameter change (again using either BEN1 or BEN2), followed by firms with 20-249. Firms with 1-19 employees, however, had the lowest dollar change in benefits.

From these results we conclude that a UI parameter change that increased benefits would be especially burdensome, in dollar terms, for a large subset of small firms in each of the three states. Conversely, a parameter change that reduced benefits should be especially beneficial for these small firms. The parameter changes that lead to increased benefits include:

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1. The larger the parameter change is, the less plausible is the assumption of no adaptive behavior by firms or claimants.

- Increasing the weekly benefit amount

- Decreasing the number of waiting weeks

- Increasing the potential duration of benefits

- Loosening qualifying requirements or their enforcement.

Changes in the opposite direction lead to reduced benefits.

As far as tax parameters go, the following changes appeared especially burdensome, in dollar terms, for small business. In California, an increase in the taxable wage base or in the tax rate for all firms raised taxes more for firms with 10-249 employees than for all except the two largest categories. In Delaware, an increase in the tax rate for new firms or in the minimum tax rate hurt small business the most. And in Texas, an increase in the tax rate for new firms or in the length of time before experience rating was especially harmful for firms with fewer than 50 employees.

Effects in Percentage Terms

Because the various size categories generated different amounts of UI benefits and taxes, the percentage increase in benefits or taxes resulting from a parameter change may exhibit a different pattern than the dollar increase. Using the percentage increase as a criterion, the following benefit parameter changes appear burdensome for at least some small firms. An increase of $10 in the weekly benefit amount hurt firms with 1-19 employees in California (also the very largest firms) and all small firms in Texas. An increase in potential duration had a relatively large effect on benefits for firms with 0-99 employees in Delaware and firms with 20-249 employees in Texas. Accepting more benefit applicants in Texas would be expected to hurt firms with 5-249 employees the most. In percentage terms, large firms were affected the most by changes in waiting week provisions.

In all three states, the percent increase in taxes resulting from an increase in the taxable wage base tends to decline as firm size rises, at least over the range 1-99 employees. Not surprisingly, an increase in the tax rate for new firms raised taxes considerably more for small firms than for large ones. The same was true of an increase in the length of time before experience rating in Texas. Care should be taken in extending this last result to other states. In Texas the tax rate for new firms (2.7 percent) was much higher than the average tax rate (0.53 percent). This need not always be true. In states with high tax schedules, a new firm may be better off paying a fixed rate than a rate based on its own experience.

In Delaware, the percentage increase in taxes resulting from an increase in the minimum tax rate declines as firm size rises (and equals zero for firms with 500 or more employees). No strong pattern emerges

from the simulation of an increase in the maximum tax rate or an increase of 0.001 in the tax rate for all firms.

CONCLUSION

It appears that there are some UI parameter changes that would be especially burdensome for small business, whether the dollar change in benefits (or taxes) or the percentage change is used as a criterion. The most burdensome changes revealed by the simulations were not the same in the three states. Moreover, it was not always the very smallest firms that were affected the most by a change. In fact, it was unusual to find results that varied monotonically with firm size. This is not really surprising. A firm's industry is probably a more important determinant of its experience under the UI system than its size is.

Not only the numerical results discussed here, but also the model used to generate them, should be of interest. The equations used to do the simulations indicate which variables are important in predicting the effects of a change in the UI system and can be used to extend the results for California, Delaware, and Texas to other states.

GLOSSARY OF SELECTED UNEMPLOYMENT COMPENSATION TERMS

Base period. A one-year period--generally the first 4 of the last 5 completed calendar quarters--preceding the first spell of unemployment in a benefit year. Eligibility for benefits, the weekly benefit amount, and the potential duration of benefits depend on earnings during the base period.

Base-period employers. The firms for which a UI claimant worked during his base period.

Benefit ratio. A measure of a firm's experience with unemployment, computed as the ratio of UI benefits charged to the firm during the past 3 to 5 years (depending on the state) to the firm's taxable payroll during the same period. Twelve states use the benefit ratio to determine a firm's UI tax rate.

Benefit wages. The wages earned by a claimant during his base period, counted up to the taxable wage base for each employer. When an individual becomes unemployed, each of his base-period employers is charged with the portion of his benefit wages that was earned from that employer.

Benefit wage ratio. A measure of a firm's experience with unemployment, computed as the ratio of its benefit wages during the past 3 years to taxable payroll during the same period. Four states use the benefit wage ratio to determine a firm's UI tax rate.

Benefit year. A one-year period generally beginning at the same time as a claimant's first spell of unemployment. The weekly benefit amount is the same for all spells of unemployment during a given benefit year.

Charged benefits. The UI benefits that are attributed to a firm for the purpose of measuring that firm's unemployment experience.

Computation date. The date as of which employer and statewide experience are measured for the purpose of determining UI tax rates.

Effective date. The date on which new UI tax rates go into effect.

Exhaustee. A claimant who has received all the UI benefits to which he is entitled.

Extended benefits. A supplemental program that pays extended compensation during periods of high unemployment to individuals who (1) have exhausted regular benefits during their benefit year or (2) remain unemployed after their benefit year has ended and have insufficient wage credits to establish a new benefit year. Extended benefits are financed on a 50/50 basis by the state and the federal government.

Federal unemployment tax. The tax imposed on employers by the Federal Unemployment Tax Act (FUTA)[1] for the purpose of financing unemployment benefits. Employers in states with approved UI systems may receive a credit against a portion of the federal tax; the remainder is used to pay administrative costs and the federal share of extended benefits. The gross federal tax rate has risen from 3.0 percent in 1938 to 6.2 percent in 1985, while the net federal tax rate has risen from 0.3 percent to 0.8 percent.

High quarter. The quarter of a claimant's base period during which his wages were the highest. In many states, the weekly benefit amount is based on high-quarter earnings.

Last employer. The firm that employed a claimant immediately before his spell of unemployment began.

Maximum benefit amount. The total amount of benefits that a claimant is entitled to receive during his benefit year—that is, in all spells of unemployment combined.

Noncharged benefits. UI benefits that are not assigned to any employer. The type and volume of noncharged benefits vary from state to state. They generally include benefits chargeable to firms that have gone out of business and benefits paid following claimants' disqualification; in some states, extended benefits are not charged.

Potential duration of benefits. The total number of weeks of benefits that a claimant is entitled to receive during his benefit year. Potential duration equals the maximum benefit amount divided by the weekly benefit amount.

Reserve account. In reserve ratio states, separate accounts are maintained for each employer subject to the UI laws. Taxes paid by the employer are credited to his reserve account, while charged benefits are subtracted from the account.

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1. Title 26 U.S. Code, Chapter 23, sections 3301-11.

Reserve ratio. A measure of a firm's experience with unemployment, computed as the ratio of the balance in a firm's reserve account to aggregate or average taxable payroll over the last 1 to 5 years (depending on the state). Thirty-one states use the reserve ratio to determine a firm's UI tax rate.

Spell of unemployment. A period of time during which an individual is continuously unemployed.

Taxable payroll. The portion of a firm's payroll on which UI taxes are paid. The wages of each employee of the firm (counted up to the taxable wage base) are included in the taxable payroll.

Taxable wage base. The amount of an employee's annual earnings from a given firm that is subject to the UI tax.

Waiting period. A period of unemployment at the beginning of a benefit year (generally a week) during which a claimant does not receive UI benefits.

Weekly benefit amount. The amount payable to a claimant for a week of total unemployment, generally calculated as a fraction of base-period or high-quarter earnings.

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APPENDIX A

DATA BY INDUSTRY AND FIRM SIZE

APPENDIX A

DATA BY INDUSTRY AND FIRM SIZE

This appendix contains, for each of the three states studied, tabulations of the following variables by industry and firm size:

Number of firms

Employment

UI tax rate

Layoff rate

SUB1 (except for Texas)

SUB2

SUB2 per employee.

TABLE A-1

NUMBER OF FIRMS BY INDUSTRY AND SIZE CLASS: CALIFORNIA, 1981

Industry	0	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000-4,999	5,000+	Total
152	3,575	11,085	2,365	1,010	450	132	15	3	1	2		18,638
154	250	730	350	295	195	59	44	11	4	3		1,941
161	260	620	365	210	130	51	23	6	1			1,666
171	795	2,925	1,245	795	415	83	37	7	2			6,304
201	5	50	30	65	75	25	29	5	2			289
203	30	45	65	35	45	40	34	22	27	3		352
22	60	70	65	75	65	36	19	10	3	8	1	403
23	980	910	870	910	975	350	132	37	9	3		5,176
26	50	75	45	70	100	85	43	12	8	6		494
271	60	155	95	95	100	65	31	17	6	8	1	633
281	10	30	15	5	25	15	6	3	1	3		113
282	10	30	5	25	30		16	3	1			120
286	5	30	5	5	20	15	1	1				84
291	5		20	5	5		8	1	2	2	3	55
331	10	25	35	20	35	22	12	2	1	1	1	164
344	180	500	325	345	315	106	56	10	5	2	1	1,845
356	30	175	65	100	75	66	30	11	3	3		558
367	280	450	340	240	325	141	119	39	8	20	4	1,966
371	100	230	110	100	145	58	30	15	3	3	1	795
421	1,600	4,710	1,345	1,080	625	165	69	16	8	8	1	9,627
48	150	190	85	150	225	73	27	22	5	6	3	936
501	425	1,390	820	410	265	101	46	10	2	1		3,470
508	1,605	4,455	1,870	1,460	885	325	96	30	9	3		10,738
512	125	440	125	115	100	27	21	8	3	1		965
514	690	2,050	760	605	461	106	78	19	10	8		4,787
531		10	20	5	20	5	14	9	3	8	15	109
541	1,510	3,510	2,290	1,100	525	115	39	18	14	13	5	9,139
551	270	315	85	325	790	518	96	1	1			2,401

TABLE A-1 (Continued)

Industry	Firm size											Total
	0	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000-4,999	5,000+	
554	1,275	4,470	3,030	1,155	260	41	17	5	4			10,257
581	8,650	14,020	7,710	5,900	4,336	1,363	398	95	42	34	8	42,556
602	45	50	30	50	80	65	52	22	9	10	6	419
631		125	20	80	55	25	25	3	8	7	1	349
651	1,765	10,180	1,305	495	245	46	32	7	2	1	5	14,083
701	680	2,040	865	550	440	159	142	54	18	15		4,963
721	760	2,415	815	455	230	56	27	5	3	3		4,769
723	1,455	5,365	1,515	500	120	11	12	5		1		8,984
734	940	2,375	720	375	175	123	45	16	7	4		4,780
736	525	845	330	190	210	190	128	38	25	19	1	2,501
794	110	170	45	45	30	10	11	2	4			427
801	3,240	18,330	4,465	1,070	320	81	28	4	2	1	11	27,552
811	2,755	11,130	1,615	740	365	149	47	11	3	1		16,816
891	995	3,400	1,285	670	360	116	71	25	8	2		6,932
Total	36,335	110,285	37,620	22,000	14,837	5,543	2,414	671	284	232	68	230,289

A-3

EMPLOYMENT BY INDUSTRY AND SIZE CLASS: CALIFORNIA, 1981

Industry	Firm Size										Total
	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000-4,999	5,000+	
152	22,853	14,862	13,637	13,637	9,120	2,291	1,147	560	2,101		79,935
154	1,620	2,326	4,202	6,068	4,437	7,014	3,974	2,759	5,081		37,482
161	1,474	2,430	2,844	4,172	3,647	3,254	1,806	813			20,441
171	6,297	8,285	10,584	12,468	5,391	5,402	2,682	1,502			52,610
201	116	198	964	2,174	1,764	4,496	1,755	1,391	6,233		19,093
203	134	441	519	1,424	2,742	5,594	8,298	19,166	17,687	5,519	61,524
22	146	442	1,014	2,117	2,942	2,834	3,512	1,793			14,801
23	2,007	5,968	12,327	29,317	24,489	18,859	12,573	5,579	5,935		117,054
26	176	266	918	3,214	6,139	6,590	4,210	5,989	9,809		37,312
271	414	632	1,282	2,782	4,851	4,911	5,231	4,411	12,223	7,856	44,593
281	95	112	86	792	1,092	1,028	1,028	879	5,448		10,559
282	64	24	306	908		2,616	1,111	554			5,582
286	60	42	49	730	894	154	311		2,542		4,780
291	72	134	65	232	1,592	1,164	372	1,294	14,269	24,429	41,958
331		210	322	1,272		1,687	849	802	1,733	9,093	17,636
344	1,164	2,102	4,889	9,302	7,126	8,061	3,294	3,136	3,083	12,046	54,202
356	392	480	1,523	2,599	4,762	4,147	3,829	1,826	5,034		24,628
367	1,002	2,213	3,304	10,488	9,622	17,889	14,104	5,805	52,269	27,498	144,195
371	504	796	1,424	4,268	3,966	4,601	4,986	1,962	4,858	12,776	40,140
421	9,498	8,862	14,388	18,605	11,054	10,214	6,242	5,364	12,938	11,269	108,432
48	448	566	2,238	7,211	5,185	3,861	7,470	2,962	12,210	148,334	191,585
501	3,060	5,346	5,571	8,192	7,370	6,635	3,322	1,446	1,072		42,012
508	9,426	12,282	19,822	26,486	22,020	14,804	10,460	6,600	5,018		126,919
512	806	858	1,533	2,848	2,251	2,811	2,774	2,120	1,372		17,372
514	4,165	5,091	8,081	14,548	7,013	11,514	6,723	6,676	14,016		77,828
531	10	140	75	659	334	2,177	2,744	2,007	17,523	283,604	309,274
541	7,961	15,114	14,321	14,960	7,260	5,818	7,151	9,607	27,792	103,860	213,845

TABLE A-2 (Continued)

Industry		Firm size									Total
	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000-4,999	5,000+	
551	706	542	4,620	26,044	33,821	12,476	290	792			79,292
554	11,230	19,682	14,758	7,538	2,942	2,576	1,634	2,876			63,235
581	33,500	51,358	80,458	131,129	91,549	59,370	31,471	31,212	58,476	72,789	641,311
602	99	198	655	2,736	4,658	8,264	7,228	6,219	20,997	147,453	198,507
631	260	152	1,057	1,762	1,908	3,808	1,158	6,036	15,761	6,295	38,195
651	17,993	8,213	6,557	7,052	3,195	4,887	2,555	1,362	1,158		154,640
701	4,342	5,760	7,282	13,292	11,597	21,578	17,599	12,533	27,052	101,688	121,035
721	5,162	5,260	6,068	6,034	3,690	4,074	1,742	2,041	4,065		38,136
723	12,031	9,580	6,572	3,299	708	1,492	1,427		1,823		36,931
734	5,168	4,668	5,234	5,368	8,704	7,414	5,430	4,782	8,630		55,397
736	1,801	2,084	2,570	6,600	13,173	19,715	12,894	17,433	33,630	7,127	117,025
794	276	300	637	850	651	2,133	825	2,771			8,444
801	37,054	27,443	14,014	8,662	5,325	4,338	1,194	1,327	1,400	223,025	333,783
805	328	354	862	6,747	24,321	29,635	11,397	5,356	29,914		108,915
811	18,570	10,338	9,900	10,381	10,066	7,430	3,570	1,865	4,600		76,720
891	6,845	8,312	9,002	10,306	7,841	11,068	8,454	5,275	3,160		70,262
Total	229,331	244,464	296,263	449,269	381,214	360,686	230,823	198,920	452,008	1,214,642	4,057,619

A-5

TABLE A-3

UI TAX RATE BY INDUSTRY AND SIZE CLASS· CALIFORNIA, 1981 (%)

Industry	Firm Size										Total
	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1000-4999	5000+	
152	3.26	3.07	3.35	3.39	3.01	3.77	1.99	4.50	4.26		3.26
154	4.16	2.99	3.68	3.74	4.16	3.64	4.02	3.72	2.07		3.49
161	3.61	3.41	3.49	3.64	3.58	3.90	3.81	4.20			3.66
171	2.90	2.75	2.94	2.89	3.32	4.05	3.47	2.87			3.11
201	3.27	3.37	2.77	3.09	2.52	3.42	2.86	3.46	3.14		3.14
203	3.29	2.86	2.50	3.00	3.35	3.38	3.39	3.80	3.95	3.60	3.71
22	3.22	2.16	2.86	2.61	2.67	2.70	2.57	2.61			2.64
23	2.84	2.69	2.85	2.71	2.70	2.80	2.97	2.66	2.92		2.78
26	2.46	3.27	2.77	2.97	2.42	2.47	2.30	2.81	2.32		2.51
271	2.53	2.41	2.78	2.48	2.34	2.02	1.96	1.73	1.99	1.92	2.05
281	2.02	2.97	2.63	2.46	2.09	2.45	1.71	2.63	2.01		2.13
282	4.47	1.98	2.45	2.46		2.41	2.14	2.82			2.42
286	2.14	2.96	2.24	2.46	2.55	1.72	2.23		1.57		1.98
291		2.21	3.73	a		2.09	2.12	1.95	1.59	1.39	1.51
331	3.74	2.64	2.56	2.88	3.11	2.42	3.01	2.44	3.72	3.68	3.36
344	2.64	2.67	2.74	2.94	2.56	2.96	2.75	3.31	2.31	2.02	2.65
356	2.74	2.53	2.61	2.65	2.71	2.59	2.40	2.15	2.30		2.49
367	2.26	2.60	2.47	2.36	2.48	2.63	2.49	2.29	2.30	2.16	2.37
371	3.01	2.29	2.63	2.70	3.24	2.78	2.70	2.75	3.39	3.66	3.19
421	2.87	2.99	2.98	3.02	3.10	2.72	2.48	2.59	2.65	2.12	2.79
48	1.82	2.56	2.43	2.48	2.70	2.56	2.61	2.54	2.38	1.65	1.84
501	2.74	2.46	2.38	2.31	2.46	2.36	2.29	2.06	1.91		2.38
508	2.50	2.39	2.47	2.36	2.24	1.80	2.28	2.60	2.29		2.28
512	2.58	3.12	2.70	2.47	2.37	2.38	2.02	2.00	2.75		2.39
514	2.60	2.42	2.31	2.65	2.73	3.18	3.06	2.72	2.38	1.94	2.68
531	.64	1.29	a	2.44	1.76	2.09	2.16	1.75	2.12		1.95

TABLE A-3 (Continued)

Industry	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1000-4999	5000+	Total
					Firm Size						
541	2.52	2.47	2.54	2.33	2.58	2.39	2.34	2.47	1.93	2.04	2.16
551	2.36	2.37	2.71	2.53	2.45	2.43	2.33	2.14			2.48
554	2.57	2.52	2.58	2.51	2.98	2.88	2.38	2.87			2.59
581	2.83	2.65	2.56	2.50	2.52	2.37	2.60	2.36	2.46	2.27	2.49
602	.45	.78	2.14	2.48	2.17	2.21	2.06	2.21	1.91	1.75	1.84
631	2.85	1.97	2.48	2.48	2.06	2.25	1.97	2.08	1.90	1.62	1.98
651	2.42	2.75	2.54	2.89	2.75	2.81	2.76	2.82	3.00	a	2.66
701	2.71	2.79	2.95	2.81	3.03	2.79	2.90	2.61	2.59		2.77
721	2.49	2.46	2.49	2.14	2.51	2.28	2.00	2.28	2.26		2.33
723	2.20	2.36	2.15	2.49	1.74	2.87	2.52		2.32		2.30
734	2.67	2.71	2.46	2.35	2.76	2.77	2.54	2.80	2.50		2.62
736	2.94	2.82	2.54	2.25	2.81	2.92	2.69	2.51	2.62	2.60	2.67
794	2.37	2.89	2.52	3.04	2.70	3.58	3.16	3.59			3.34
801	2.26	2.30	2.19	2.21	2.24	2.03	1.92	3.06	2.34	0.22	2.25
805	2.32	2.57	2.04	2.42	2.49	2.36	2.76	2.38	1.42		2.10
811	2.32	2.29	2.18	2.15	2.26	2.13	2.18	1.95	2.93		2.23
891	2.55	2.36	2.44	2.59	2.81	2.78	2.75	2.97	2.52		2.65
Total	2.61	2.59	2.64	2.63	2.64	2.64	2.65	2.72	2.35	1.96	2.44

a. missing data

TABLE A-4

LAYOFF RATE BY INDUSTRY AND SIZE CLASS: CALIFORNIA, 1981 (%)

Industry	Firm Size										Total
	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1000-4999	5000+	
152	21.2	20.3	18.9	22.8	11.0	1.1	0	0	0		18.1
154	37.0	13.8	18.4	20.3	19.2	9.9	12.6	6.0	0		13.5
161	30.9	22.0	31.1	36.9	22.1	2.7	0	0			21.0
171	15.9	15.9	12.6	13.9	15.6	1.5	7.9	0			12.4
201	0	15.1	10.3	24.6	8.6	3.7	2.8	15.4	2.6		7.2
203	9.0	1.3	10.9	23.5	15.9	3.7	5.2	1.9	0	0	2.9
22	17.5	9.2	9.3	5.5	39.5	1.3	1.6	0			10.2
23	8.4	9.2	14.4	9.7	8.9	1.3	1.5	2.1	11.3		7.5
26	9.6	20.4	5.6	9.2	10.2	1.9	1.5	4.5	0		3.9
271	2.8	6.1	8.4	7.9	3.3	0.7	0.7	2.6	0.3	0	1.7
281	0	13.4	17.4	0	11.0	4.1		0	2.8		3.3
282	0	0		11.0		2.4	0	0			3.3
286	0	0	8.9	6.9	12.3	0	0	0	0	0	3.6
291		35.5	20.4	0		0	0	0	0.4	0	0.2
331	24.6	4.8	10.0	6.4	14.1	2.8	0	0	52.1	0	8.6
344	16.0	11.9	10.1	15.2	13.0	7.7	1.1	0	0	0	7.1
356	11.8	7.3	12.2	8.1	6.5	2.2	3.3	0	0		4.0
367	8.1	7.6	7.9	8.7	9.9	2.9	0.6	10.6	9.7	10.9	7.8
371	13.8	4.0	9.5	6.0	13.6	1.7	0	1.7	0	0	2.8
421	15.3	12.3	11.2	15.5	12.7	4.0	2.8	6.8	1.7	0	8.7
48	6.0	13.9	4.3	6.3	8.5	2.2	1.3	2.2	0	0	0.7
501	6.0	7.0	6.2	5.6	9.5	0.8	0.4	0	0		5.0
508	5.8	4.4	5.2	6.0	6.8	1.8	1.3	1.4	7.1		5.1
512	3.6	5.6	6.7	4.8	1.9	0.8	0	0	0		2.2
514	7.9	5.0	4.4	8.7	10.6	1.4	9.8	0	0	5.9	4.9
531	0	0	0	5.8	0	0	0.4	0	0		5.4

TABLE A-4 (Continued)

Industry	Firm Size										Total
	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1000-4999	5000+	
541	5.1	5.8	4.4	4.7	2.1	1.3	1.8	0	0	0.7	1.6
551	3.6	14.6	8.7	9.1	7.4	1.7	7.2	0			7.1
554	9.0	7.4	6.7	6.0	9.2	5.0	2.5	0			6.9
581	7.7	5.9	5.2	4.2	4.3	2.2	3.9	1.4	1.5		3.6
602	0	0	0	3.5	3.4	0.7	0	0	2.4	1.8	1.8
631	73.7	3.3	9.9	3.0	4.7	1.2	0	1.3	0	0	1.4
651	3.1	4.2	5.0	4.8	8.3	1.6	0	9.1	0	0	2.6
701	5.6	8.1	9.7	8.0	7.5	1.3	5.5	1.7	0.7		4.1
721	6.7	6.3	6.9	6.5	5.6	1.5		3.5			5.3
723	3.0	2.9	3.5	3.9	6.6	0	5.7		8.1		3.6
734	11.5	11.1	7.8	7.2	7.1	4.0	3.6	2.8	0		5.6
736	12.1	5.7	10.2	5.8	7.0	4.2	3.8	4.0	1.3	0	3.7
794	8.9	21.6	0	0.8	0	8.0	0	0			3.4
801	2.5	2.6	2.4	1.7	2.2	0.3	0	0	0	0	1.4
805	14.9	6.3	3.3	4.6	3.9	2.1	2.2	2.7	1.1		2.6
811	3.0	3.5	3.4	3.3	2.5	0.1	0.7	0	0		2.6
891	5.6	5.7	7.0	6.4	7.4	1.7	1.9	0.5	12.2		4.9
Total	7.6	7.2	7.5	7.9	7.4	2.4	2.8	2.2	2.1	2.2	4.5

TABLE A-5

SUB1 BY INDUSTRY AND SIZE CLASS: CALIFORNIA, 1979-82 ($000)

Industry	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1000-4999	5000+	Total
152	2,513	1,733	2,538	7,377	-3,363	-3,005	-2,671	-2,488			2,634
154	368	167	-1,413	861	565	-4,794	-1,235	-2,490	-2,634		-10,606
161	573	347	572	3,148	-3,579	-4,360	-1,773	-1,050			-6,122
171	-922	-479	-2,449	-1,844	-4,381	-3,582	-2,846	-2,426			-18,929
201	-39	49	-171	-636	248	-3,179	-1,366	-1,027	-2,956		-9,078
203	4,531	-184	-438	82	1,054	-5,321	-3,774	-19,671	-28,630	-8,547	-60,897
22	38	-71	-567	-762	760	-2,257	-1,808	-1,113			-5,779
23	-381	-1,777	-59	-8,912	-12,117	-12,976	-8,976	-3,089	-3,618		-51,905
26	-131	16	-340	-1,135	-2,188	-4,456	-2,276	-4,662	-6,695		-21,868
271	-105	-253	-10	-850	-1,644	-3,090	-2,250	-1,266	-6,608	-3,907	-19,982
281	-70	-57	40	-563	-198	-584	-476	-636	-1,802		-4,346
282	-33	-98	173	-204		-689	-546	-420			-1,818
286	-44	-42		-223	-77	-87	-198		-1,303		-1,975
291	-2	-42	-39	-162	-66	-674	-245	-805	-6,186	-9,974	-18,195
331	0	-180	-129	-790	207	-809	-836	-555	5,555	-11,875	-9,412
344	-234	-841	-1,329	-1,530	-2,566	-6,233	-2,193	-3,480	-2,124	-6,959	-27,488
356	-49	-235	-666	-937	-2,197	-2,284	-2,076	-1,900	-2,615		-12,957
367	-293	-749	-1,146	-4,185	-5,237	-10,366	-10,276	-3,496	-16,258	-13,836	-65,842
371	-89	-228	-1,372	-1,430	-939	-2,990	-2,716	-2,391	-7,541	-16,600	-36,297
421	-761	-2,245	-3,903	-1,955	-4,220	-6,354	-4,188	-3,160	-8,721	-7,292	-42,797
48	-112	-133	-1,152	-2,509	-1,620	-2,641	-4,468	-1,457	-8,471	-69,708	-92,272
501	-1,351	-2,093	-2,483	-3,419	-2,845	-4,772	-2,252	-893	-591		-20,699
508	-4,229	-5,614	-7,795	-10,667	-8,190	-6,875	-7,077	-4,816	-3,294		-58,558
512	-343	-210	-451	-1,363	-741	-2,969	-1,480	-1,009	-865		-9,431
514	-1,557	-1,913	-2,835	-4,863	-729	-8,564	-3,859	-3,173	-9,264		-36,756
531	-2	-59	-9	-202	-218	-1,042	-2,094	-895	-13,763	-99,423	-117,708

TABLE A-5 (Continued)

Industry	| 1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1000-4999	5000+	Total
541	-2,411	-4,899	-5,110	-5,734	-3,078	-3,034	-2,510	-6,960	-16,616	-59,184	-109,532
551	-313	-300	-1,957	-12,105	-13,088	-7,392		-455			-35,611
554	-3,670	-6,306	-4,404	-2,095	-751	-1,301	-906	-1,178	-878		-21,488
581	-8,923	-14,629	-23,236	-42,796	-28,946	-21,728	-13,939	-11,575	-25,034	-36,015	-226,821
602	-14	-108	-323	-1,618	-2,283	-4,641	-4,288	-4,200	-9,162	-57,135	-83,772
631	-84	-68	-204	-907	-499	-1,980	-944	-2,626	-9,263	-3,069	-19,645
651	-6,482	-3,229	-3,038	-2,740	-1,039	-1,908	-2,020	-589	-937		-21,983
701	-1,087	-1,514	-2,274	-4,671	-3,220	-12,647	-9,658	-6,432	-16,972		-58,474
721	-1,565	-1,884	-2,374	-2,074	-824	-2,325	-1,189	-1,032	-2,599		-15,865
723	-4,835	-3,764	-2,501	-1,169	-759	-589	-664		-329		-14,614
734	-1,051	-533	-1,829	-612	-3,426	-3,637	-3,227	-1,542	-5,734		-21,590
736	-747	-347	-712	-2,890	-4,451	-11,917	-6,846	-7,431	-19,478	-5,496	-60,316
794	-77	-183	-185	-471	-251	-1,125	-753	-3,011			-6,056
801	-18,701	-12,326	-6,301	-3,624	-2,158	-2,433	-546	-310	-970		-47,370
805	-58	-110	-136	-2,885	-9,424	-11,743	-3,177	-2,606	-6,208	-2,784	-39,132
811	-9,925	-5,003	-4,771	-5,094	-4,194	-5,417	-1,930	-1,188			-37,522
891	-2,765	-2,816	-3,449	-3,766	-2,731	-7,513	-6,919	-5,666	-11,296		-46,919
Total	-65,432	-73,211	-88,239	-132,920	-135,407	-206,281	-133,473	-125,170	-253,855	-411,806	-1,625,794

TABLE A-6

SUB2 BY INDUSTRY AND SIZE CLASS: CALIFORNIA, 1979-82 ($000)

Industry	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1000-4999	5000+	Total
152	20,876	12,881	11,836	18,100	5,943	2,789	-1,352	2,752			73,826
154	2,772	1,751	4,101	5,785	2,863	4,781	2,996	1,492	853		27,395
161	2,286	3,092	3,791	3,988	7,502	4,447	2,240	364			27,709
171	1,728	1,095	1,030	-728	-1,000	-410	-521	-149			1,045
201	102	16	-46	571	292	1,496	-643	173			-665
203	7,318	-33	102	97	4,078	3,720	7,174	33,221	96,629	28,302	180,608
22	323	-28	-204	-585	435	472	10	-375			48
23	887	197	4,153	1,579	-2,142	-1,482	-825	-320	-1,973		75
26	-35	-1	24	-433	-1,363	-2,225	-333	-141	-895		-5,403
271	-14	-109	-86	-687	-1,070	-1,851	-1,624	-1,075	-4,274	-3,343	-14,132
281	-54	-60	-16	-88	-336	-768	-293	-421	-1,604		-3,639
282	-33	-81	-79	-185		-350	-238	-303			-1,267
286	-38	-44		-202	-255	-70	-103		-849		-1,561
291	-2	-51	5	46	-37	-399	-111	-538	-4,639	-8,453	-14,181
331	49	101	-105	-458	-308	-319	245	-9	3,172	5,416	7,784
344	-3	-457	-1,215	-398	-2,150	-1,073	-600	-85	-779	-2,996	-9,756
356	119	-133	-516	-879	-1,534	-804	-719	-770	-1,590		-6,825
367	-158	-540	-1,125	-4,159	-3,464	-6,149	-5,457	-2,407	-12,641	-13,332	-49,433
371	-7	-229	409	319	388	-673	159	2,225	14,818	42,113	59,522
421	4,539	632	2,974	2,708	3,128	310	-1,557	-1,427	-965	-5,436	4,906
48	-53	-40	-637	-2,620	-1,343	-1,766	-2,242	-1,021	-4,006	-53,930	-67,659
501	-426	-1,199	-2,012	-2,627	-2,038	-2,725	-1,130	-606	-443		-13,206
508	-3,031	-4,431	-7,222	-8,567	-8,167	-5,194	-3,418	-3,280	-4,624		-47,933
512	-139	-239	-451	-1,233	166	-2,145	-880	-660	-590		-6,170
514	-917	-667	-1,712	-889	797	534	1,424	1,302	-4,310		-4,440

TABLE A-6 (Continued)

Industry	Firm Size										Total
	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1000-4999	5000+	
531	2	-8	-3	-69	-115	-535	-1,412	-664	-10,270	-98,922	-111,996
541	-1,285	-3,239	-3,825	-3,961	-1,767	-1,619	-1,299	-3,677	-9,897	-42,845	-73,413
551	193	158	-740	-5,418	-7,704	-4,152		-363			-18,027
554	-1,641	-4,502	-3,297	-1,580	-535	-667	-527	-416	-498		-13,665
581	-2,164	-8,532	-16,989	-31,712	-23,508	-14,292	-6,237	-8,305	-17,202	-24,513	-153,454
602	-14	-114	-445	-1,538	-2,357	-3,783	-3,208	-3,086	-8,324	-54,861	-77,729
631	-89	-46	-308	-665	-584	-1,299	-630	-1,847	-5,756	-1,984	-13,209
651	-3,966	-1,518	-1,597	-1,145	-950	-1,381	-9	-579	-552		-11,697
701	-96	-372	-1,493	-2,858	-2,234	-5,740	-4,493	-4,843	-9,143		-31,272
771	-921	-1,262	-1,543	-1,393	-943	-1,327	-744	-809	-1,262		-10,204
723	-3,942	-3,210	-1,959	-981	-622	-295	-419		-421		-11,848
734	127	-103	-560	-806	-2,279	-1,576	-1,640	-463	-2,486		-9,785
736	-63	-192	-625	-1,430	-1,105	-6,712	-3,772	-4,478	-9,668	-2,531	-30,576
794	-7	-109	-88	-174	-124	-479	97	-7			-891
801	-16,046	-10,613	-5,665	-3,162	-2,378	-1,828	-446	-222	-673		-41,033
805	17	-103	-102	-2,472	-7,902	-8,696	-2,187	-1,940	-5,309	-2,188	-30,882
811	-8,256	-4,463	-3,906	-5,064	-3,367	-3,879	-1,614	-888			-31,437
891	-2,139	-1,890	-3,163	-2,952	-2,176	-3,658	-3,058	-1,844	-14,086		-34,966
Total	-4,201	-28,694	-33,310	-58,925	-60,264	-71,770	-39,395	-6,491	-26,883	-239,504	-569,437

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TABLE A-7

SUB2 PER EMPLOYEE BY INDUSTRY AND SIZE CLASS: CALIFORNIA, 1979-82 ($)

Industry	1-4	5-9	10-19	20-49	50-99	Firm Size 100-249	250-499	500-999	1000-4999	5000+	Total
152	639	676	693	1,144	822	969	-300	1,121			726
154	1,192	645	893	803	825	815	860	437	274		757
161	1,131	1,017	1,353	904	1,400	1,085	694	416			1,073
171	213	118	94	-67	-145	-68	-111	-79			18
201	565	73	-50	265	115	360	-308	57	-529		-33
203	34,653	-70	195	63	1,043	538	845	2,087	4,464	5,573	2,792
22	1,221	-54	-169	-256	130	120	4	-217			3
23	274	23	243	46	-75	-68	-70	-64	-337		1
26	-157	-2	22	-127	-199	-322	-341	-26	-91		-139
271	-30	-125	-66	-233	-300	-279	-341	-279	-351	-426	-318
281	-407	-435	-168	-117	-302	-346	-426	-484	-308		-324
282	-523	-695	-160	-294		-310	-293	-578			-337
286	-300	-490		-215	-411	-455	-344				-329
291	-115	-464	39	127	-450	-359	-298	-408	-338	-347	-341
331	754	400	356	286	258	245	317	-12	1,726	653	476
344	-2	-195	-216	-41	-292	-145	-139	-28	-258	-256	-174
356	280	-198	-327	-332	-334	-214	-202	-286	-421		-288
367	-121	-180	-277	-339	-334	-315	-364	-385	-369	-475	-369
371	-10	-242	190	63	89	-120	25	390	2,909	4,001	1,282
421	355	57	192	134	238	28	-267	-166	-57	-479	39
48	-81	-53	-244	-319	-309	-297	-301	-346	-329	-369	-354
501	-99	-212	-324	-314	-267	-341	-353	-419	-423		-288
508	-240	-306	-342	-311	-342	-275	-324	-451	-286		-314
512	-137	-232	-265	-421	112	-431	-352	-313	-427		-323
514	-178	-102	-202	-52	122	39	137	395	-325		-53
531	202	-54	-43	-114	-332	-246	-313	-329	-389	-353	-354
541	-115	-182	-235	-253	-255	-299	-293	-369	-349	-415	-335

TABLE A-7 (Continued)

Industry	Firm Size										Total
	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1000-4999	5000+	
551	219	165	-138	-175	-215	-287		-463			-202
554	-110	-209	-230	-204	-199	-172	-157	-82	-476		-183
581	-44	-126	-172	-197	-229	-235	-171	-281	-250	-346	-206
602	-139	-267	-474	-488	-480	-446	-424	-480	-427	-423	-429
631	-391	-149	-358	-390	-295	-423	-359	-364	-350	-319	-351
651	-178	-167	-215	-137	-222	-262	-4	-436	-26		-143
701	-18	-52	-175	-192	-242	-205	-268	-292	-325		-233
721	-132	-214	-233	-230	-249	-357	-304	-382	-323		-246
723	-252	-277	-286	-317	-397	-306	-295		-251		-277
734	18	-17	-92	-143	-218	-180	-229	-140	-249		-152
736	-24	-67	-188	-173	-75	-303	-265	-282	-311	-348	-250
794	-13	-318	-140	-166	-218	-346	105	-1			-74
801	-362	-389	-406	-400	-416	-326	-379	-378	-17		-280
805	39	-216	-183	-298	-299	-297	-257	-230	-214	-395	-274
811	-352	-394	-393	-448	-398	-434	-543	-478			-402
891	-225	-231	-315	-292	-310	-316	-377	-362	-670		-386
Total	-14	-98	-98	-116	-148	-180	-159	-31	-51	-280	-139

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TABLE A-8

NUMBER OF FIRMS BY INDUSTRY AND SIZE CLASS: DELAWARE, 1980

Industry	Firm Size											Total
	0	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000-4,999	5,000+	
152	256	275	70	35	16	2	1					655
154	56	29	12	20	18	3	3					141
161	15	15	10	9	10	3	9	2				73
171	107	128	48	29	10	4	3					329
201	3	4	1		3	5						16
203	5	2	4		4	5	1	1	1			23
22		4	2			5						11
23	12	9	2	4	5	3	4	1	1			41
26	2	5			3	2	4	1	1	1		19
271	5	4	4	2	1	2	1		1			20
281		2			2	5						9
282	3	2		2	1	5		2	2	4		21
286	1	1					2	1	1	2	2	10
291							1		1			2
331	1					1				1		3
344	8	5	6	5	5	1	3					33
356				2	1		1					4
367	2						1					3
371				1	1	1	1					4
421	135	109	40	27	24	5	2	1				343
48	8	5	4	11	8	1	1	1		2		41
501	29	56	18	13	4	2						122
508	148	164	54	32	13	2	2		1			416
512	28	56	3	1	1	1	1					91
514	61	60	17	13	6	1	1					159
531	16		1		3	4	6	5	4	1		40
541	136	109	47	36	24	9	4	5	4			371
551	20	9	9	14	35	12	4	2	2			99

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TABLE A-8 (Continued)

Industry	0	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000-4,999	5,000+	Total
							Firm Size					
554	187	221	85	23	4	2						522
581	480	255	155	143	144	39	13	2	1			1,232
602	11		3	2	7	3			3	1		30
631	10	26	6	9	7	3	2	1				64
651	75	169	51	29	10	2	1					337
701	29	39	23	13	8	2	3		1			118
721	50	49	21	10	9	1	1					141
723	91	152	45	15	2							305
734	64	55	28	23	7	5	5	1		1		189
736	39	23	6	5	11	4	4	3				95
794	11	14	4	3	2		3					37
801	143	352	100	23	7	8	5					625
805	15	3	1	5	8							45
811	62	119	34	24	14	3						256
Total	2,361	2,593	930	598	446	152	90	28	25	15	2	7,240

TABLE A-9

EMPLOYMENT BY INDUSTRY AND SIZE CLASS: DELAWARE, 1980

Industry	Firm Size										Total
	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000-4,999	5,000+	
152	532	440	441	448	128	170					2,159
154	58	76	259	589	224	392					1,598
161	36	66	112	305	193	1,546	610				2,868
171	269	327	385	304	303	429					2,017
201	13	8		89				3,590			3,700
203	4	27		131	373	116	353	671			1,675
22	9	14			295		273				591
23	19	12	56	140	442	588					1,257
26	11			130	249	725	265		1,710		3,090
271	11	26	27	31	110	248		614			1,067
281	2			68	139		951	766			1,926
282			29	47	356		716	1,482	9,662	36,271	48,563
286	5		14			301	420	642	6,681		8,063
291	1							921			922
331					51				1,216		1,267
344	15	38	68	142	58	486					807
356			34	36		137					207
367						211					211
371				31		106			8,167		8,304
421	206	258	361	769	347	304	311				2,556
48	10	29	166	244	86	151	271		3,185		4,142
501	97	130	172	133	126						658
508	291	371	415	430	133	388		651			2,679
512	74	20	11	43	69			743			960
514	117	118	178	184	71	225					893
531		5		102	258	894	1,647	2,559	1,213		6,678
541	254	312	479	785	680	598	1,322	1,590			6,020

TABLE A-9 (Continued)

Industry	Firm Size										Total
	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000-4,999	5,000+	
551	23	67	198	1,148	837						2,273
554	516	546	265	123	105						1,555
581	604	1,021	1,970	4,422	2,620	1,764	502	903			13,806
602		21	28	171	188			2,449	1,358		4,215
631	50	43	129	178	236	310	281				1,227
651	338	328	376	323	108	173					1,646
701	88	146	166	262	166	421		522			1,771
721	108	143	134	301	82	102					870
723	338	298	195	56							887
734	121	186	338	218	312	613	277		1,180		3,245
736	44	40	72	391	287	490	834				2,158
794	23	20	41	73		440					597
801	753	622	282	203							1,860
805	5	9	62	236	543	604					1,459
811	195	223	316	493	220						1,447
891	120	112	209	237	175	410					1,263
Total	5,360	6,102	7,988	14,016	10,570	13,342	9,033	18,103	34,372	36,271	155,157

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TABLE A-10

UI TAX RATE BY INDUSTRY AND SIZE CLASS: DELAWARE, 1980 (percent)

Industry	Firm Size										Total
	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000-4,999	5,000+	
152	3.88	3.52	3.69	3.06	2.80	4.06					3.54
154	4.91	4.06	4.32	4.55	5.28	5.64	a				4.93
161	5.48	4.67	5.05	5.26	6.50	6.50					5.97
171	3.33	3.69	3.36	3.21	4.75	4.76					4.04
201	3.35	1.60		2.60				2.75			2.75
203	5.47	3.73		4.08	5.45	3.70	6.50	2.00			4.55
22	5.60	2.57			4.08		6.50				5.18
23	4.66	3.11	5.79	5.07	5.14	6.41					5.78
26	3.71			3.26	3.45	3.81	2.30		3.90		3.68
271	2.42	2.56	3.60	1.70	1.60	1.90		2.10			2.06
281	4.15			2.56	1.70		1.70	1.70			1.73
282			1.82	1.70	2.52		2.10	1.76	1.72	1.70	1.72
286	3.85		2.78			1.70	1.70	1.70	1.70		1.70
291	1.60							1.90			1.90
331				3.32	1.90	5.76					4.30
344	4.89	4.44	4.05	2.80	3.90				4.40		4.96
356			1.60			1.80					1.96
367						2.30					2.30
371				1.60		5.40			5.82		5.80
421	3.65	3.06	3.08	3.18	3.29	3.05	3.70				3.26
48	3.38	2.30	1.98	2.30	2.70	1.70	1.70		1.70		1.77
501	2.70	2.43	2.00	3.20	1.77						2.39
508	2.90	2.30	2.12	2.92	2.29	1.66		2.10			2.29
512	2.52	2.65	1.60	3.00	2.70			3.00			2.91
514	2.76	2.50	2.43	2.56	1.60	2.60					2.48
531		1.60		2.93	2.60	2.71	2.24	2.65	2.40		2.52
541	2.96	2.66	2.67	2.39	2.85	2.34	3.34	2.90			2.86

TABLE A-10 (Continued)

Industry					Firm Size						
	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000-4,999	5,000+	Total
551	2.77	2.56	2.08	2.21	2.80						2.24
554	2.59	2.77	2.35	3.13	2.80						2.67
581	3.20	3.02	2.90	2.96	2.84	3.20	1.78	1.90			2.86
602		2.74	1.71	1.68	1.67			1.70			1.73
631	2.38	2.13	2.00	1.98	1.92	1.73	1.90		1.80		1.91
651	2.90	3.16	2.75	3.27	2.32	3.40					3.00
701	3.82	3.76	3.64	2.64	2.84	2.90		1.70			2.56
721	2.85	2.41	2.25	2.46	2.90	1.60					2.38
723	2.57	2.33	2.57	1.95							2.44
734	3.52	2.91	3.42	3.22	2.16	3.26	2.40		2.10		2.74
736	3.78	2.97	3.04	2.98	2.75	2.30	2.51				2.66
794	2.59	1.88	3.74	5.89		5.68					5.47
801	2.40	1.96	1.75	1.66							2.07
805	2.57	2.00	1.88	2.07	1.78	1.70					1.78
811	2.62	2.01	1.92	1.87	1.67						1.97
891	3.64	2.51	2.72	2.67	3.12	2.39					2.73
Total	3.03	2.80	2.81	2.91	3.11	3.58	2.82	2.26	3.18	1.70	2.66

a. missing data

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TABLE A-11

LAYOFF RATE BY INDUSTRY AND SIZE CLASS: DELAWARE, 1980 (percent)

Industry	Firm Size										Total
	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000-4,999	5,000+	
152	56.8	26.7	35.5	20.1	4.7	31.2					31.5
154	45.5	29.7	52.2	49.4	69.6	88.3					63.9
161	56.5	70.6	35.1	40.1	82.9	20.2	a				23.9
171	32.6	16.6	28.4	10.3	34.8	101.9					39.2
201	9.1	0		14.6				9.4			9.6
203	a	11.1		85.7	71.6	74.1	109.3	5.1			90.4
22	14.3	0			41.7		115.8				74.7
23	55.6	11.1	73.3	79.8	102.5	119.6	41.9		63.9		118.6
26	100.0			93.1	8.8	26.1					50.2
271	10.0	14.3	11.1	3.2	18.2	3.2		1.8			4.4
281	0	0		16.2	0		0.3	0			0.7
282							8.9	0.3	0.3	2.5	2.2
286	0	0	0	14.9	11.2	0.7	5.7	0	0.8		0.9
291	0							2.1			2.1
331					5.9				59.8		5.67
344	27.3	69.6	17.6	35.2	13.8	36.2					33.9
356			5.9	11.1		10.2					9.7
367						1.66					16.6
371				0		286.8			172.6		173.4
421	36.9	19.0	20.1	32.9	35.2	44.1	67.8				40.0
48	28.6	0	6.4	4.2	3.5	0	0		0.2		0.7
501	6.6	2.3	2.9	80.5	3.2						20.1
508	8.3	5.3	5.2	9.2	5.3	0		1.5			9.8
512	6.6	11.1	0	4.7	0			39.0			31.5
514	5.6	3.8	1.3	8.0	5.6	5.3					5.9
531		0		7.8	1.6	7.0	4.0	3.9	10.8		5.8

TABLE A-11 (Continued)

	Firm Size										
Industry	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000-4,999	5,000+	Total
541	7.0	9.3	2.7	5.0	12.8	1.7	4.9	1.6			4.8
551	4.8	31.6	20.4	13.2	9.2						13.3
554	8.3	5.4	4.8	8.1	2.9						6.4
581	10.2	7.8	7.6	6.5	7.9	17.7	3.4	1.7			8.2
602		9.5	0	0.6	1.1			0.9	0.7		1.6
631	4.3	2.3	2.3	7.3	2.5	1.0	1.8				2.7
651	10.6	11.3	4.1	13.4	8.3	7.5					9.5
701	26.4	26.7	11.8	13.1	15.1	9.0		0			9.3
721	13.6	11.2	5.0	10.4	17.1	2.0					9.6
723	3.4	1.9	0.6	0							2.1
734	14.3	7.9	10.0	10.2	2.6	10.0	4.3		4.0		6.4
736	9.7	36.0	14.8	11.8	13.6	13.8	6.6				11.0
794	0	0	0	5.8		26.8					22.4
801	3.9	2.0	1.2	1.0	1.5						2.5
805	0	0	14.0	0.5	0.9	0.5					1.4
811	5.2	0.5	2.0	1.2							1.7
891	9.9	11.5	5.3	9.7	17.1	3.7					8.2
Total	14.7	10.7	11.7	15.3	19.5	26.0	15.5	4.8	47.1	2.5	19.7

a. missing data, or undefined

A-23

TABLE A-12

SUB1 BY INDUSTRY AND FIRM SIZE: DELAWARE, 1978-81   ($000)

Industry	Firm Size											Total
---	0	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000-4,999	5,000+	---
152	7	267	166	128	-31	7	-26					518
154	6	32	71	466	230	550	698					2054
161	0	32	77	46	325	176	775	a				1430
171	1	68	103	-37	16	733	44					928
201		-1	2	68	4				-1805			-1732
203	0		1	37	49	298	186	107	-118			562
22		-2	-4		160	-60		-169				-75
23	10	3	-2	119	134	-202	-234	-76				-248
26		2			111	-62	-319	-62		250		-80
271		-6	-2	-4	-26	-20	-52	-139	-180			-291
281		2	1		-17	-17		75	-513			-683
282				-11	-16	-116	-62	-2	-608	-4062	-12,299	-17,099
286			-12	-9			-117		-293	-2765		-3,201
291		-3							-416			-416
331		-1	-3			-24				-635		-662
344		14	22	12	170	-18	191					391
356				-10	-6		-23					-40
367		-2					81					80
371					-12		1214			16,052		17,254
421	2	59	26	45	204	516	30	36				916
48		-3	-15	-32	-66	-27	-59	-172		-894		-1,269
501		-13	-54	-75	95	144						97
508	0	-109	-84	-105	-102	-49	106		-203			-546
512		-5	5	-1	61	-20			-79			-39
514		-31	-39	-38	-31	-16	-47					-202
531		1	-2	10	-42	-85	-290	-268	-685	-385		-1,747
541	0	-22	-51	-98	-200	-83	-241	4	-1,061			-1,751

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TABLE A-12 (Continued)

Industry	\			Firm Size								Total
	0	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000-4,999	5,000+	
551		-11	16	-27	-53	-20						-96
554	0	-88	-163	-29	-42	-24						-346
581	1	-95	-102	-212	-757	-319	-343	-23	-182			-2,032
602		-1	-7	-20	-66	-94	3	-25	-708	-495		-1,411
631		-16	-14	-21	-44	-64	-121	-115				-394
651	0	-54	-76	-83	-8	14	-54					-261
701	1	16	46	-31	-42	-54	-137		-205			-406
721	0	8	-31	-28	-31	80	-27					-29
723	1	-116	-114	-54	-20							-304
734	0	-22	2	-55	-11	-15	-57	-38		-65		-261
736	1	9	-6	33	-93	-48	13	-106				-197
794		-7	-8	-3	-14		141					109
801		-307	-173	-81	-78	-129	-167					-640
805		6	0	-4	-68	-92			a			-362
811	0	-106	-80	-100	-169							-548
891		-57	-63	6	-63	-78	-95					-350
TOTAL	31	-557	-567	-202	-550	782	1,009	-975	-7,056	7,002	-12,299	-13,379

a. missing data

A-25

TABLE A-13

SUB2 BY INDUSTRY AND FIRM SIZE: DELAWARE, 1978-81 ($000)

Industry	0	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000-4,999	5,000+	Total
152	20	273	227	135	59	23	47					785
154	23	52	105	323	312	606	1,007					2,428
161	0	31	103	85	311	159	748	a				1,436
171	7	99	178	-18	43	772	-31					1,049
201		2	0	56	8				-1,401			-1,334
203	19		-2	45	41	305	229	77	10			725
22		1	2		172	-45		-148				-18
23	48	9	-2	108	70	-171	-230	-174				-343
26		11			123	-36	-199	-49		259		110
271		-6	-3	-1	-23	-19	-41		-121			-214
281		5	-1		-31	-13		-117	-507			-665
282		-3	-8	-10	-9	-117	-62	146	-598	-3,993	-12,044	-16,688
286		-1		-9			-96	-44	-293	-2,624		-3,077
291									-382			-383
331			-3			-24				-297		-324
344		9	50	26	228	3	270					586
356				-5	-1		-10					-16
367		-2					98					97
371					-11		1,308			16,703		18,000
421	3	58	46	107	196	630	87	61				1,189
48		-5	-13	-19	-55	-19	-49	-164		-898		-1,222
501		-1	-37	-51	119	-36						-6
508	1	-93	-49	-88	-98	-33	303		-181			-238
512		10	7	4	65	-18			-175			-107
514		-32	-13	34	26	-8	-41					-35
531	2	7	-1	11	-39	-72	-170	-185	-572	-334		-1,354
541		-13	-54	-54	-110	-65	-270	223	-1,036			-1,377

TABLE A-13 (Continued)

Industry	Firm Size											Total
	0	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000-4,999	5,000+	
551		-9	12	1	58	53						114
554	1	-3	-76	10	-17	-9						-94
581	18	-27	-58	-148	-454	-256	-269	-25	-145			-1,363
602		-1	-5	-16	-60	-92	10	-25	-626	-462		-1,276
631		-9	-13	-38	-33	-45	-116	-95				-350
651	3	-49	-37	-30	-4	24	-27					-119
701	1	25	52	-28	-43	-35	-109		-205			-343
721	0	23	-18	-16	-26	90	-21					32
723	0	-111	-106	-49	-18							-284
734	2	-18	9	-33	-17	5	-57	-9				-123
736	0	18	-8	-10	-85	-49	-19	-84		-6		-237
794		-7	-6	-4	-20		132					95
801		-305	-160	-75	-76							-616
805		6	0	2	-55	-101	-129		a			-276
811	0	-96	-78	-91	-152	-89						-506
891		-51	-33	6	-26	-77	-68					-248
Total	149	-201	5	161	368	1,243	2,222	-613	-6,233	8,349	-12,044	-6,593

a. missing data

TABLE A-14

SUB2 PER EMPLOYEE BY INDUSTRY AND FIRM SIZE: DELAWARE, 1978-81 ($)

Industry	Firm Size										Total
	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000-4,999	5,000+	
152	312	304	232	103	178	224					251
154	447	482	786	662	1,587	2,868					1,245
161	712	1,116	623	876	908	509	a				501
171	247	426	-43	110	2,263	-79					446
201	182	82	2,326	98				-365			-337
203		-135	852	213	668	992	211	14			363
22	192	130		2,531	-182		-511				-29
23	268	-272	1,503	308	-502	-323	-425				-190
26	946			1,108	-88	-265	-180		143		33
271	-220	-154	-25	-317	-319	-173		-197			-199
281	4,839	-249		-263	-155			-397			-356
282	-550		-374	-120	-339	-264	-307	-417	-414		-346
286	-689	-1,205	-769			-317	157	-439	-395	-339	-382
291							-105	-398			-399
331		-470	358	1,203	-452	650			-232		-242
344	359	1,103		-23	67	-76					735
356			-162								-80
367	-406			-394		602					578
371				216	1,018	7,880			1,972		2,077
421	159	135	211	-228	-245	156	214		-301		331
48	-260	-537	-117	717	-148	-170	-182				-260
501	-11	-212	-239	-187	-170						-7
508	-204	-106	-167	799		614		-300			-73
512	101	300	146	75	-242	-191		-222			-98
514	-178	-86	149	-222	-121	-100					-29
531	7,352	-49	367	-139	-73	-355	-81	-230	-254		-163
541	-29	-104	-90				167	-625			-198

TABLE A-14 (Continued)

Industry					Firm Size						
	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000-4,999	5,000+	Total
551	-255	126	5	51	54						45
554	-4	-90	29	-112	-77						-42
581	-24	-34	-50	-75	-81						-72
602	-708	-232	-193	-303	-216	-122	-74	-92			-221
631	-174	-357	-200	-239	-201	83	-53	-204	-335		-284
651	-115	-85	-73	-10	135	-366	-348				-59
701	217	276	-154	-160	-124	-168					-152
721	136	-101	-92	-79	1,257	-157		-385			32
723	-261	-267	-219	-313		-208					-257
734	-95	40	-84	-35	11	-156	-32				-35
736	201	-168	-60	-166	-93	-38	-99		-5		-87
794	-216	-166	-71	-284		278					140
801	-307	-254	-292	-380							-296
805	539	15	31	-240	-93	-138		a			-93
811	-355	-275	-226	-287	-297						-283
891	-343	-200	25	-70	-318	-261					-175
TOTAL	-25	1	15	21	92	139	-57	-300	241	-339	-38

a. missing data

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TABLE A-15

NUMBER OF FIRMS BY INDUSTRY AND SIZE CLASS: TEXAS, 1981

Industry	Firm Size											Total
	0	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000-4,999	5,000+	
152	5,935	4,985	1,195	450	149	21	3					12,738
154	2,900	1,435	935	665	404	153	69	17	8	2		6,588
161	420	220	250	180	122	56	32	12	3	1		1,296
171	2,885	2,890	1,310	780	315	74	40	4	3			8,301
201	110	60	80	45	39	35	22	16	5	6		418
203	10	5		15	8	4	12	4	2	1		61
22	100	25	20	15	7	8	6		1	2		184
23	435	230	190	170	134	91	73	23	16	13	1	1,376
26	50	15	45	70	43	22	32	4	2	6		289
271	260	250	130	95	73	27	23	7	4	6		875
281	10	10	10	5	10	7	6	3	1	2		64
282	10				1	1	2	3	5	1		23
286	35	15	10		5	5	4	5	6	5	2	92
291	25	10	10	10	13	7	7	5	8	4	2	101
331	25		5	10	6	7	6	3	7	1	3	73
344	625	425	310	375	299	141	66	25	10	5		2,281
356	95	65	60	75	48	35	21	6	4			409
367	90	85	65	55	43	23	11	8	6		2	388
371	95	20	35	60	49	19	18	6	2	1	1	306
421	3,430	3,300	935	650	458	151	85	36	10	9		9,064
48	500	370	235	385	198	61	41	8	2	3	2	1,805
501	795	910	610	395	215	67	16	4	3			3,015
508	3,320	4,565	2,500	1,730	819	193	101	20	15	8	1	13,272
512	190	225	135	60	57	28	11	2	2	1		711
514	955	1,070	465	320	238	92	49	13	7	3		3,212
531	10	10	40	10	45	29	18	11	4	7	8	192
541	4,090	4,025	1,520	875	496	127	74	19	13	15	6	11,260

TABLE A-15 (continued)

Industry					Firm Size							
	0	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000-4,999	5,000+	Total
551	730	200	300	575	447	197	113	3		1		2,566
554	5,585	5,265	1,715	475	115	32	23	9	2			13,221
581	14,330	6,810	3,910	3,710	2,204	587	263	74	19	30	1	31,938
602	30	20	205	490	589	303	110	29	9	8		1,793
631	100	235	45	40	53	30	25	14	6	3		551
651	4,245	5,435	1,425	690	251	83	43	7	5			12,184
701	1,855	950	420	345	243	143	85	27	7	10		4,085
721	1,675	1,980	615	375	206	63	25	3	2	2		4,946
723	3,645	3,795	1,085	265	56	12	6	1	1			8,866
734	1,255	1,155	395	275	131	57	39	5	8	4		3,324
736	940	795	345	165	131	94	72	33	15	6		2,596
794	85	45	15	20	11	3	4		1			184
801	3,800	9,590	2,810	895	219	31	12	3	1			17,361
805	340	65	5	10	173	227	107	25	1	5	1	959
811	3,465	6,250	1,015	430	142	48	15	3	2			11,370
891	1,565	2,310	945	670	291	95	58	12	7	3		5,956
Total	71,050	70,120	26,350	16,930	9,556	3,489	1,848	512	235	174	30	200,294

TABLE A-16

EMPLOYMENT BY INDUSTRY AND SIZE CLASS: TEXAS, 1981

Industry	Firm Size										Total
	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000-4,999	5,000+	
152	9,664	7,324	5,822	4,174	1,419	457					28,859
154	3,226	6,196	9,020	12,196	10,567	10,460	5,678	5,573	2,734		65,651
161	551	1,592	2,448	3,753	3,887	4,917	4,145	2,115	1,018		24,426
171	5,918	8,422	10,172	9,324	4,897	5,730	1,225	1,706			47,394
201	118	520	568	1,380	2,446	3,551	5,832	2,992	10,292		27,701
203	11		232	212	258	1,839	1,321	1,315	1,653		6,840
22	58	132	194	200	525	802		736	2,329		4,977
23	498	1,268	2,336	4,312	6,566	11,390	7,518	11,621	23,648	11,859	81,013
26	38	296	1,024	1,333	1,596	5,086	1,264	1,160	15,308		27,104
271	604	826	1,292	2,117	1,833	3,685	2,504	2,684	11,650		27,194
281	21	71	71	313	465	1,043	1,150	636	5,491		9,261
282				30	53	235	1,097	3,702	1,225		6,342
286	51	56		153	365	759	1,957	4,380	16,334	20,603	44,657
291	31	82	158	342	553	1,304	1,676	5,182	6,126	27,558	43,010
331		40	128	196	445	953	1,010	4,487	1,291	18,782	27,332
344	1,036	2,156	5,040	9,258	9,661	9,729	8,370	6,664	7,301		59,214
356	144	412	993	1,549	2,484	3,021	2,140	2,599			13,342
367	190	424	774	1,396	1,620	1,659	3,097	4,194		53,853	67,207
371	68	207	826	1,563	1,325	2,629	1,820	1,308	1,224	6,775	17,746
421	6,227	6,079	8,810	13,610	10,289	13,192	12,377	6,451	18,691		95,727
48	811	1,426	5,450	6,048	4,295	6,109	2,938	1,613	3,111	61,498	93,299
501	2,288	3,974	5,130	6,441	4,519	2,443	1,311	2,570			28,675
508	9,232	16,253	23,454	24,162	13,002	14,872	6,656	10,648	14,258	12,669	145,206
512	483	928	722	1,640	1,992	1,893	522	1,305	1,083		10,567
514	2,224	3,082	4,159	7,271	6,555	7,226	4,582	5,238	3,385		43,722
531	32	254	106	1,570	1,890	3,127	3,855	2,625	18,162	104,204	135,824
541	8,812	9,533	11,758	14,584	8,644	11,863	6,634	8,912	37,114	68,882	186,736

TABLE A-16 (continued)

Industry	1-4	5-9	10-19	20-49	Firm Size 50-99	100-249	250-499	500-999	1,000-4,999	5,000+	Total
551	500	2,110	8,023	14,086	13,787	16,326	951	1,232			57,013
554	10,630	10,833	5,798	3,336	2,152	3,313	3,080	1,116			40,257
581	14,964	25,690	50,529	65,327	39,765	38,885	25,920	12,261	57,025	5,198	335,566
602	61	1,453	6,865	18,588	21,011	15,265	9,902	5,974	13,889		93,008
631	384	329	606	1,647	2,078	4,030	5,260	3,814	7,699		25,847
651	10,214	8,986	9,014	7,605	5,644	6,251	2,443	3,052			53,120
701	1,878	2,794	4,773	7,622	9,660	13,335	9,642	5,067	16,571		71,342
721	4,124	3,878	4,963	6,084	4,170	3,665	1,053	1,291	2,748		31,975
723	7,645	6,862	3,336	1,516	830	802	414	886			22,293
734	2,546	2,446	3,606	3,996	3,838	6,070	1,728	6,010	8,963		39,204
736	1,752	2,160	2,301	4,140	6,584	10,558	11,600	10,471	11,768		61,336
794	102	78	226	321	229	582		915			2,453
801	20,888	17,006	11,570	6,087	2,104	1,636	838	707			60,837
805	143	46	174	6,498	16,217	15,619	8,760	580	10,079	5,674	63,790
811	11,014	6,284	5,751	4,175	3,259	2,318	999	1,346			35,148
891	4,807	5,987	9,154	8,707	6,625	8,588	4,430	4,194	3,433		55,924
TOTAL	143,902	168,492	227,378	288,860	240,107	277,214	177,699	160,098	336,834	297,554	2,418,138

TABLE A-17

UI TAX RATE BY INDUSTRY AND SIZE CLASS: TEXAS, 1981 (%)

Industry	Firm Size										Total
	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000-4,999	5,000+	
152	.50	.58	.75	.89	.96	.50	1.36	1.97			.67
154	.77	.91	.99	1.19	1.41	1.50	.68	.72	1.81		1.33
161	.62	.57	.54	.96	.62	.80	.77		1.20		.74
171	.39	.60	.36	.63	.72	1.25	.48	2.52			.72
201	1.44	.30	.27	.60	.77	1.23		.64	.92		.79
203	.40		1.02	.54	1.24	2.18	3.19	4.00	.30		2.13
22	.93	.94	1.31	.25	.77	.75		.40	1.72		1.14
23	1.08	1.00	.68	1.08	1.13	1.18	1.42	.73	1.42		1.13
26	0[a]	1.47	1.23	.48	.80	.52	.54	.25	.55	.90	.58
271	.29	.17	.40	.32	.38	.38	.40	.22	.27		.31
281	1.40	0[a]	0[a]	.60	.51	.69	.78	.20	.39		.47
282				.09	1.58	.18	1.20	.29	.40		.47
286	.32	.33		.22	.38	.38	.53	.15	.15	.10	.15
291	.84	1.08	1.48	.67	.32	.19	.32	.35	.32	.64	.54
331		2.41	.08	.71	1.02	.21	.53	.39	.50	.62	.57
344	.70	.98	.71	.56	.45	.39	.56	.38	.91		.57
356	.32	.35	.58	.39	.39	.47	.51	.29			.42
367	.34	.97	1.12	.61	.67	.27	.49	.58		.30	.36
371	0[a]	0[a]	.74	.60	.68	.45	.94	1.00	1.50	4.00	1.89
421	.66	.81	.66	.51	.44	.47	.56	.49	.40		.52
48	1.11	.70	.69	.66	.66	.47	.52	.40	.33	.28	.39
501	.45	.30	.37	.38	.37	.50	.31	.90			.43
508	.75	.44	.36	.37	.38	.33	.20	.27	.27	.20	.36

TABLE A-17 (Continued)

Industry	Firm Size										Total
	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000-4,999	5,000+	
512	1.28	.67	.88	.49	.28	.61	.30	.69	.60		.58
514	.50	.77	.52	.60	.73	.95	.53	.28	.50		.62
531	1.50	.44	.77	.46	.67	.59	.59	.54	.29	.36	.37
541	.51	.47	.37	.44	.54	.53	.61	.51	.48	.37	.44
551	.44	.40	.40	.46	.44	.42	.26		.09		.43
554	.33	.37	.34	.56	.55	.74	1.05	.88			.48
581	.58	.68	.58	.57	.55	.41	.50	.33	.30	.30	.48
602	.14	.52	.31	.27	.19	.19	.18	.20	.12		.21
631	.50	.62	.18	.45	.37	.33	.31	.30	.33		.34
651	.64	.86	.85	.88	.88	.76	.35	.89			.79
701	.58	.69	.85	.82	.79	.63	.76	.26	.35		.61
721	.49	.43	.38	.48	.34	.41	.33	.32	.37		.41
723	.32	.30	.32	.47	.32	.70	.20	.40			.34
734	.56	.52	.52	.50	.73	.44	.88	.43	.41		.51
736	.82	.62	.93	.73	.56	.61	.66	.32	.63		.60
794	.74	0ᵃ	1.81	.72	.19	.69		.30			.64
801	.40	.26	.31	.31	.31	.27	.12	.20			.32
805	.59	.74	.05	.37	.46	.37	.52	.50	.50	.50	.45
811	.31	.28	.20	.23	.20	.21	.10	.10			.24
891	.56	.40	.30	.49	.49	.42	.42	.85	.48		.47
TOTAL	.51	.53	.52	.56	.57	.59	.61	.57	.50	.44	.53

a. possibly missing data

A-35

TABLE A-18

LAYOFF RATE BY INDUSTRY AND SIZE CLASS: TEXAS, 1981 (%)

Industry	Firm Size										Total
	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000-4,999	5,000+	
152	3.7	3.9	4.6	6.0	6.3	2.2					4.4
154	4.5	5.2	5.9	7.0	9.1	9.5	9.7	8.4	5.3		7.6
161	11.4	6.0	1.5	6.0	4.9	5.9	5.2	5.7	7.5		5.4
171	2.8	3.0	3.7	4.6	4.9	6.3	4.3	7.3			4.2
201	4.5	2.1	1.8	3.4	10.1	4.8	2.9	12.1	5.0		5.5
203	0		11.9	4.4	17.5	16.5	39.2	26.1	4.0		19.2
22	0	15.2	0	3.0	5.0	5.7		4.8	25.7		14.7
23	5.0	3.0	4.1	6.4	8.9	11.8	12.5	11.3	13.5	28.9	14.0
26	0	2.3	3.7	4.0	4.2	3.4	1.2	1.2	3.0		3.0
271	0.9	1.3	1.9	1.6	1.7	1.2	0.9	1.0	0.6		1.0
281	0	14.1	0	2.2	1.8	1.0	1.2	1.7	8.6		5.8
282				0	15.2	0	0.4	1.6	2.2		1.5
286	21.7	0		0	1.1	2.2	1.9	0.1	0.1	0.2	0.3
291	0	0	20.8	11.5	5.6	5.8	0.7	0.6	0.8	1.3	1.5
331		0	7.8	6.6	2.9	2.4	2.3	2.1	26.9	5.4	5.7
344	5.2	2.3	4.0	3.8	4.3	3.9	3.3	3.7	2.6		3.8
356	12.6	1.3	2.0	4.3	3.5	4.0	1.4	1.0			2.8
367	0	3.8	3.4	6.4	4.6	2.0	3.3	6.1		2.5	2.9
371	0	2.7	3.9	4.8	3.4	2.8	10.2	2.4	3.3	18.1	9.8
421	2.9	3.1	3.7	2.7	2.4	3.1	4.1	3.0	1.8		2.9
48	0.8	1.1	1.1	1.3	1.3	0.9	1.4	0.4	0.2	0.2	0.4
501	1.6	1.8	1.7	1.8	1.4	1.1	1.4	3.7			1.8
508	2.3	1.9	1.6	1.7	2.2	1.8	1.5	1.1	1.4	0.2	1.6
512	2.2	3.3	0.7	0.2	1.2	2.5	0.6	3.4	0.9		1.7

TABLE A-18 (Continued)

Industry	Firm Size										Total
	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000-4,999	5,000+	
514	2.5	2.6	4.1	2.9	4.1	6.0	1.8	4.1	1.6		3.6
531	0	0	0	3.6	2.3	1.5	1.4	1.1	2.7	1.0	1.3
541	2.4	1.1	2.1	1.6	1.2	1.4	1.9	1.6	1.5	1.0	1.4
551	4.7	1.9	1.0	1.7	1.6	1.0	1.2		0.2		1.4
554	2.5	2.0	2.5	2.5	2.9	1.8	2.3	2.1			2.3
581	2.3	2.0	1.5	1.4	1.2	1.1	1.7	1.0	1.4	1.0	1.5
602	0	0.7	0.2	0.3	0.2	0.3	0.4	0.3	0.3		0.3
631	0	0	0	0.8	0.4	0.9	0.5	0.7	0.7		0.6
651	1.4	1.9	2.6	2.5	2.3	2.2	1.1	0.9			2.0
701	3.6	2.5	2.0	2.4	1.9	1.6	1.8	1.5	1.5		1.9
721	1.2	2.1	1.7	1.5	1.9	1.5	1.8	1.3	1.7		1.7
723	0.5	0.4	0	0.5	1.0	0.7	0.5	0.5			0.4
734	2.2	0.7	1.9	2.2	1.8	2.1	3.5	1.3	1.0		1.6
736	2.6	1.9	0.7	3.0	3.8	4.2	3.2	3.7	5.6		3.8
794	0	0	2.5	1.3	0	0.3		0.3			0.6
801	0.6	0.6	0.6	0.6	0.6	0.4	0	0			0.6
805	3.8	0	0	1.6	1.4	1.2	1.3	1.2	1.4	1.9	1.4
811	0.7	0.9	0.4	0.3	0.5	0.4	0.4	0			0.6
891	1.8	2.0	2.4	2.2	3.2	3.5	3.9	4.3	2.0		2.8
TOTAL	2.0	2.0	2.1	2.3	2.6	2.9	3.2	3.4	2.9	2.4	2.6

TABLE A-19

SUB2 BY INDUSTRY AND FIRM SIZE: TEXAS, 1978-82 ($000)

Industry	0	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000-4,999	5,000+	Total
152	0	-882	-444	-600	-40	-36	5	0	-975	142		-1,998
154	0	-699	-410	358	232	790	721	-66	-54	-80		94
161	0	-57	-82	238	-53	11	-20	-185	-30	25		-280
171	0	-556	-559	-367	-174	-100	-856	-48	17	-431		-2,663
201	0	17	46	25	121	964	282	1,252	574	60		2,293
203		-2		-6	41	45	-114	-174				425
22	0	-11	8	5	-10	60	652		12	-121		594
23	1	-47	52	-28	342	828	2,517	908	1,658	-308	1,703	7,625
26	0	-12	-58	-62	-57	-24	79	-96	-4	-386		-617
271		-22	19	-54	-110	-111	-48	-112	-56	-285		-781
281		-4	-10	-6	-12	48	-60	165	-14	348		453
282				18	19	10	-23	-104	-14	-103		-197
286		11	47	2	-25	17	-3	69	-66	-99	-40	-88
291		-16	-60	189	127	150	72	-93	-176	-133	-683	-623
331			254	-10	115	15	233	202	785	8,028	7,336	16,958
344	0	-64	-174	-28	591	821	998	270	649	1,978		5,041
356	0	-18	41	-60	198	207	264	103	1,316			2,050
367		-43	4	190	132	138	-100	150	-112		966	1,326
371		20	42	-40	209	145	550	566	-373	-96	5,661	6,683
421	4	-739	-553	-472	-270	123	672	589	2,022	580		1,956
48	0	-109	-148	-388	-343	-163	-359	-141	-306	-43	-2,460	-4,460
501	0	-116	-74	-42	198	-109	29	-42	41	104		-11
508	0	-804	-644	-312	411	787	833	675	3,649	376	-362	4,609
512	0.	64	-44	-65	-43	29	-54	-70	-13	-46		-242
514	0	-47	-108	124	187	324	816	-161	119	-30		1,224
531		4	-18	1	-15	8	-20	-186	-88	691	-2,191	-1,815
541	0	-200	-84	-266	-439	-378	-347	713	-135	-430	-1,341	-2,907

TABLE A-19 (continued)

| Industry	Firm Size											Total
	0	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000-4,999	5,000+	
551	0	-4	-27	-164	-649	-251	-601	-19				-1,715
554	0	-284	-234	-3	-93	-23	-113	-7	16			-741
581	1	-782	-1,764	-3,246	-4,394	-2,142	-1,137	-842	-229	-915		-15,508
602	0	-2	-70	-522	-727	-683	-457	-252	-164	-139		-3,016
631		-34	-28	14	-38	-89	-101	-134	-131	-223	-59	-763
651	0	-781	-866	-724	-637	-332	-112	-130	-62			-3,643
701	0	123	-51	-363	-513	-645	-888	-339	-439	-284		-3,399
721	0	-156	-180	-178	-235	-58	-82	-51	-44	-117		-1,102
723	0	-680	-354	-214	-112	-51	-43	-4	3			-1,456
734	0	-152	-104	-104	-174	-176	-195	76	-122	-213		-1,164
736	0	-205	-171	-86	5	338	299	-175	242	742		987
794		-6	-41	-70	-16	-29	-34		-18			-213
801	0	-1,250	-484	-402	-230	-75	-82	-32	-6			-2,560
805	0	-2	22	14	-255	-863	-813	-237	-76	-341		-2,551
811	1	-556	-256	-198	-95	-47	-26	-10	-30			-1,217
891	0	-633	-130	-157	571	498	911	1,262	-81	-109		2,134
TOTAL	6	-9,736	-7,694	-8,059	-6,258	-28	3,244	3,292	7,285	8,141	8,528	-1,280

SUB2 PER EMPLOYEE BY INDUSTRY AND FIRM SIZE: TEXAS, 1978-82 ($)

Industry	Firm Size										Total
	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000-4,999	5,000+	
152	-48	-39	-62	-8	-26	17	-1				-43
154	-103	-40	25	14	71	59	-13	-250	20		1
161	-52	-41	65	-12	2	-3	-59	-18	-32		-9
171	-57	-50	-28	-16	-21	-161	-28	-48	7		-43
201	65	62	44	64	346	59	179	10	-37		74
203	-57		-24	133	140	-50	-112	502	36		56
22	-92	52	10	-26	107	566		17	-35		84
23	-51	25	-10	56	107	186	119	134	-13	157	86
26	-230	-132	-79	-31	-14	17	-54	-3	-26		-23
271	-32	15	-26	-41	-51	-13	-46	-26	-20		-25
281	-133	-100	-43	-43	102	-46	145	-23	65		48
282			300	274	155	-108	-108	-4	-85		-30
286	157	671	31	-145	39	-4	28	-20	-5	-2	-2
291	-344	-327	879	419	297	52	-30	-35	-21	-27	-15
331		1,494	-69	466	36	157	235	216	1,279	616	675
344	-38	-54	-5	56	95	86	37	97	329		82
356	-77	64	-62	101	75	131	33	921			156
367	-154	6	210	79	103	-43	41	-24		19	20
371	114	104	-47	113	103	178	270	-315	-71	896	357
421	-74	-64	-42	-16	12	51	50	289	35		19
48	-86	-63	-66	-49	-38	-54	-60	-121	-20	-41	-47
501	-34	-19	-7	30	-22	11	-40	19	101		0
508	-58	-35	-13	18	60	66	97	303	28	-32	31
512	99	-35	-58	-29	14	-27	-105	-9	-11	-16	

TABLE A-20 (Continued)

Industry	Firm Size										Total
	1-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1,000-4,999	5,000+	
514	-15	-29	21	23	47	120	-31	18	-24		26
531	64	-121	4	-8	5	-5	-35	-32	31	-23	-13
541	-14	-7	-17	-26	-41	-29	81	-17	-9	-17	-13
551	-5	-8	-15	-41	-16	-33	-13				-26
554	-15	-18	-1	-22	-9	-41	-3	15			-9
581	-25	-41	-41	-46	-42	-31	-32	-19	-17	-11	-36
602	-19	-42	-70	-40	-35	-31	-29	-27	-11		-34
631	-68	-108	14	-24	-40	-24	-26	-27	-29		-28
651	-51	-71	-62	-69	-48	-19	-28	-54			-54
701	33	-11	-57	-42	-48	-50	-37	-72	-20		-39
721	-25	-36	-31	-32	-14	-28	-31	-39	-42		-30
723	-53	-42	-44	-52	-42	-58	-10	5			-46
734	-37	-26	-22	-33	-37	-26	46	-34	-22		-14
736	-64	-71	-28	1	45	26	-17	39	84		17
794	-37	-178	-204	-34	-64	-79		-10			-54
801	-46	-30	-35	-42	-36	-52	-39	-12			-39
805	-18	281	30	-29	-40	-39	-30	-33	-20		-32
811	-37	-34	-31	-25	-14	-13	-5	-24			-29
891	-94	-17	-16	63	87	124	245	-28	-29		36
TOTAL	-42	-34	-27	-18	0	11	18	48	22	19	0
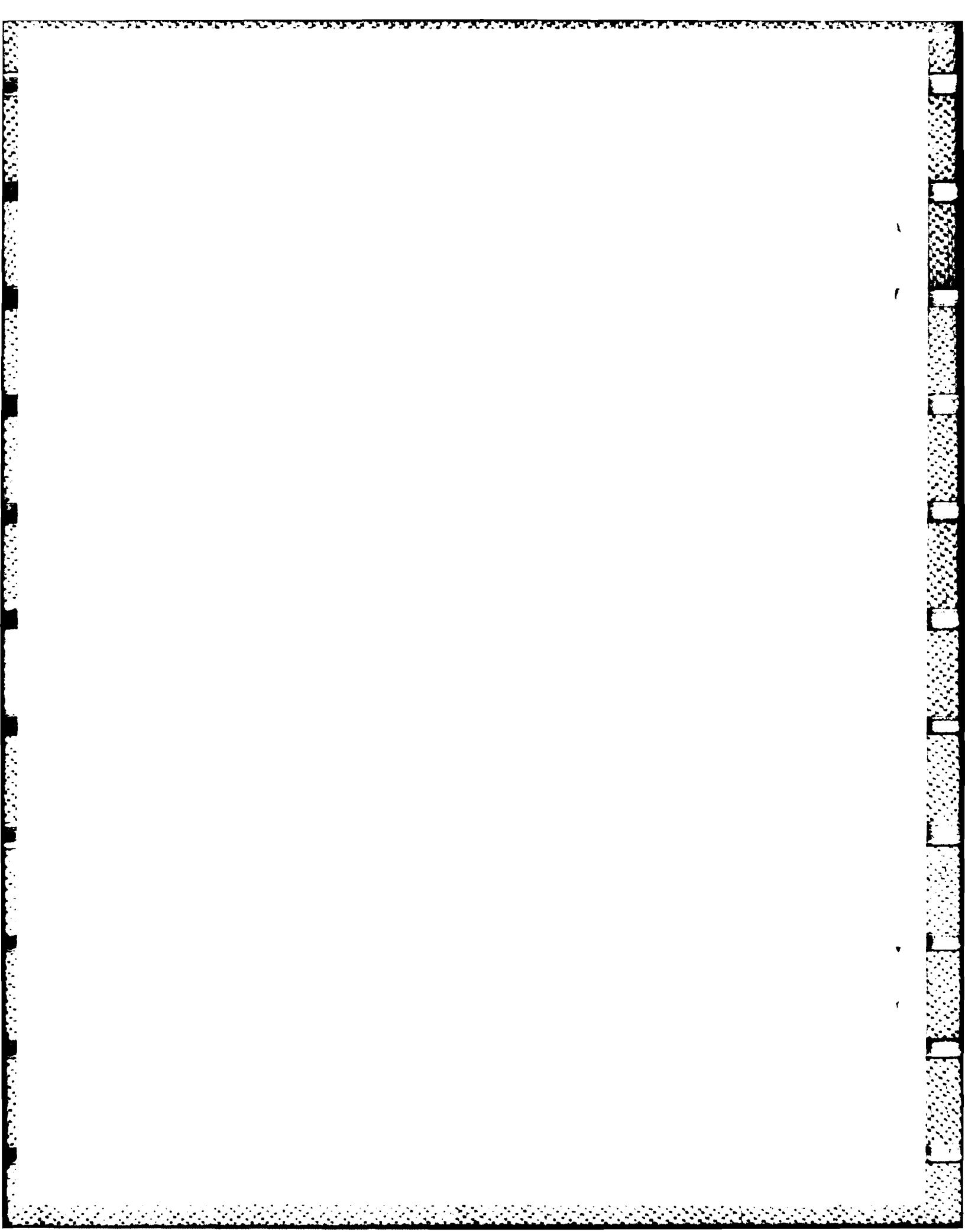
APPENDIX B

DETAILS OF THE DATA PROCESSING

APPENDIX B

DETAILS OF THE DATA PROCESSING

This appendix explains some of the finer details of the variable creation process.

SAMPLING PROCEDURE

Due to the large amount of data for California and Texas, it was decided to take a 20 percent sample of small firms in those states. The sampling procedure was based on the last digit of a firm's Employer Account Number (EAN), which varies randomly among firms.

The sample was chosen as follows. In the early stages of data processing, "small" firms with a last digit of 0 or 5 were processed, but small firms with other last digits were not. When tabulations were performed for an individual year, the sample was refined to ensure that the following conditions were met:

- All firms that should be excluded from the sample ("small" firms with last digit of EAN = 1-4 or 6-9) are excluded; i.e., some additional firms might need to be thrown out.

- All firms that should be included in the sample (all firms with last digit = 0 or 5 and "large" firms with last digit = 1-4 or 6-9) are included; i.e., no firm that was excluded in the original sampling process should now be included.

- "Small" firms with last digit = 0 or 5 are identified and given a weight of 5 in the tabulations.

Because of the way the initial data processing was done, the definition of small used to create the final sample was not the same in the two states. Table B-1 lists the definitions used in each state for each of the time periods for which tabulations were done. For Texas, average employment refers to the period during which a firm was in business; that is, zero values of employment do not count.

TABLE B-1

DEFINITION OF SMALL FIRMS FOR SAMPLING PURPOSES

State	Years	Firm is "small" if:
California	1981	Employment in June 1981 < 100
	1979-82	Employment in December 1980 < 100
Texas	1981	Average employment in 1981 < 20
	1978-82	Average employment in 1978-82 < 20

DETERMINATION OF LAST EMPLOYER

Defining BEN1 and layoffs requires identifying a claimant's last employer--that is, the employer who laid him off. A different method of doing this was used in each of the states.

California

The account number of the last employer was included in the claim record. No provision was made for guessing if the account number was missing, because it would have been costly to search the wage records for the last employer.

Delaware

The last employer was not identified in the data, so the following algorithm was used to find the last employer.

- If the spell of unemployment begins and ends in the same calendar quarter, all employers in this quarter and the immediately preceding quarter are last employers. If no employer satisfies this test, all employers in the quarter preceding the spell are last employers.

- If the spell begins and ends in different quarters, all employers in the start quarter are last employers. If there are no employers in the start quarter, all employers in the immediately preceding quarter are last employers.

If more than one employer was identified as the last employer, each was given a weight equal to the fraction of total earnings in the last quarter coming from that employer.

Spells of unemployment were not specifically identified in the Delaware data but were determined by the dates of UI benefit checks. A new spell was defined if more than 20 days elapsed between benefit payments.

B-2

Texas

As in California, the account number of a claimant's last employer was included in the claim data; so were the account numbers of his base-period employers. If the LEU (last employing unit) account number was missing, the last employer was guessed as the base-period employer who employed the individual the latest. If there was more than one base-period employer in the last quarter, the one who paid the highest wages was designated the last employer. If both the LEU and base-period account numbers were missing, the data were not processed.

Approximately one-sixth of the claimants had no employer account numbers and so were dropped. In about a fourth of the cases processed, the last employer was guessed.

END

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